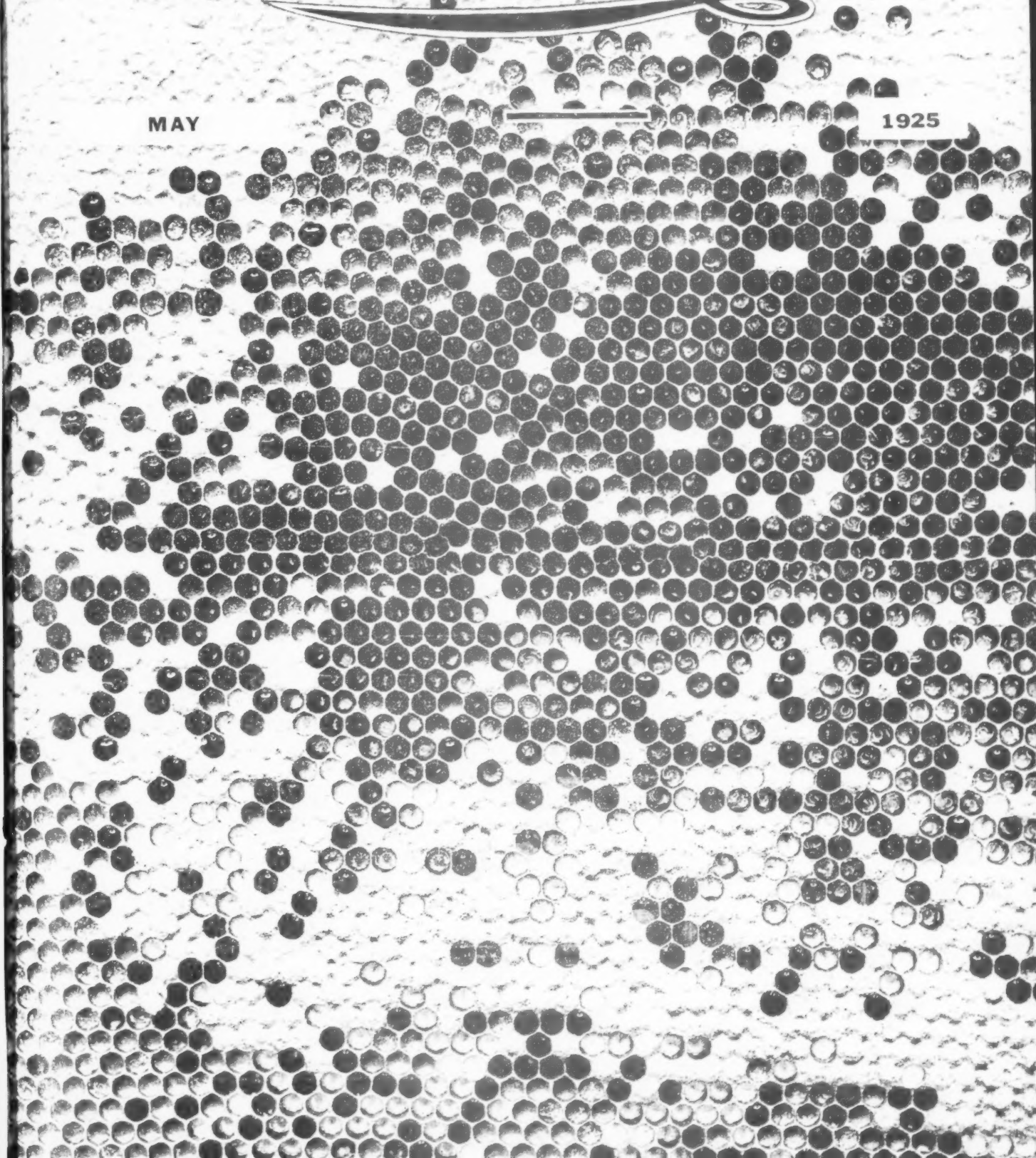


AMERICAN BEE JOURNAL

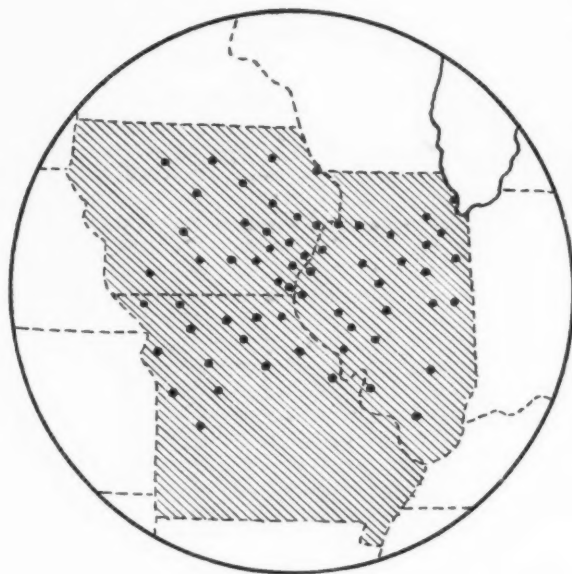
MAY

1925





Hives
Frames
Supers



Veils
Smokers
Tools

RIGHT HERE AT HOME, FOLKS
with any quantity of Lewis "Beeware" you may need.

Our dealers cover Iowa, Missouri and Illinois at places shown in above map. The nearest dealer's name is on your 1925 catalogue. Write for your copy, if you haven't one.

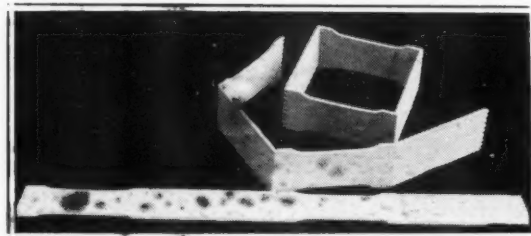
When the swarm is on the bush, wire, phone or write. You'll get **QUALITY** and **SERVICE**.

But---beat that swarm, if possible. Order early. It will save you honey and worry---and will let us sleep nights.

Yours for a big year

Dadant & Sons, Hamilton, Illinois

Distributors of Lewis "Beeware"
for Iowa, Missouri and Illinois.



Lewis high-grade, velvet finished Sections

HOFFMAN & HAUCK, Inc.

1331 OCEAN AVE. OZONE PARK, L. I. NEW YORK

Glass and Tin Honey Containers

| | |
|--|----------------|
| 2½-lb. cans in cartons of 100 | \$4.00 a crate |
| 10-lb. pails in cartons of 50 | 3.50 a crate |
| 5-lb. pails in cartons of 50 | 5.00 a crate |
| 60-lb. tins, new, 2 tins per case | 1.00 each |
| 160-lb. kegs (the ideal container for both buckwheat and clover honey) | 1.20 each |

Glass Jars with Gold Lacquered Caps

| | |
|--|-------------------|
| 16-oz. honey capacity, 2 doz. per carton | \$1.20 per carton |
| 3-lb., or quart, 1 doz per carton | .90 per carton |

Special Hazel Atlas Tall Jars

| | |
|--|-------------------|
| 8-oz. honey capacity, 2 doz. per carton | \$1.05 per carton |
| 16-oz. honey capacity, 2 doz. per carton | 1.35 per carton |
| 2-lb. honey capacity, 1 doz. per carton | .95 per carton |

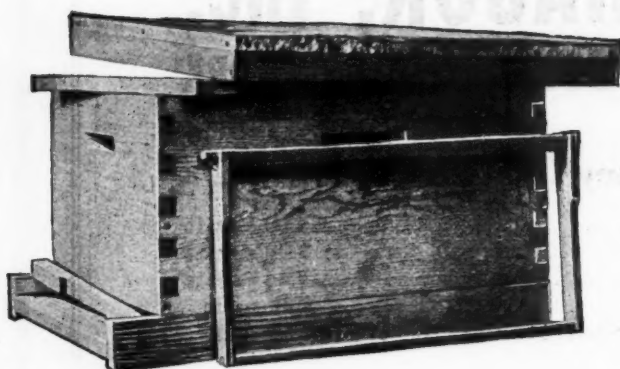
Honey for Road Stands

| | |
|---|-------------|
| White clover, 60-lb. tins, crystallized | 13c per lb. |
| White clover, 60-lb. tins, liquid | 14c per lb. |
| L. A. Southern, 60 lb. tins, liquid | 12c per lb. |

DON'T BUY YOUR BEE SUPPLIES UNTIL YOU HAVE

our prices. Send us a list of your needs and we will quote you prices that will enable you to save money

*Special discount to Association
Members*



Metal Cover Hives

With Inner Covers

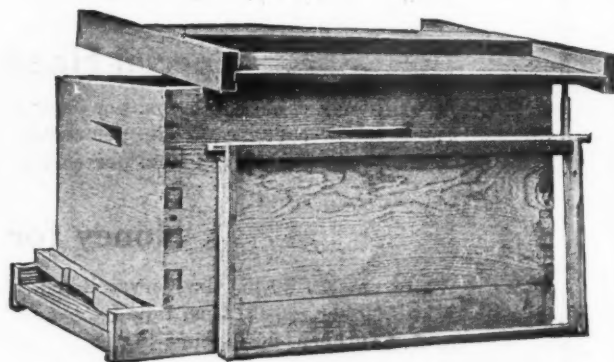
Quality in every inch has been our motto in building these hives. The cover is made of heavy white pine covered with heavy gauge galvanized iron—will last a life time. The body and in fact all the lumber used in our hives, supers and frames is clear white soft pine. All parts are full thickness, lumber perfectly smooth and exact in fitting. See our guarantee. Hives include metal cover, inner cover, body, frames, bottom board, tin rabbit and nails. Write for our catalog.

10 fr. size in lots of 5 - - - - - \$2.89 each
8 fr. size in lots of 5 - - - - - 2.58 each

Excelsior Wood Cover Hives

These hives are exactly the same as the above, except the covers which are made of wood and do not use an inner cover. Direct sales without dealer's margin is the reason for these saving prices to you. Write for our 1925 catalog—Free. ■

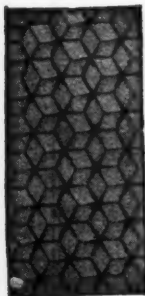
10 fr. size in lots of 5 - - \$2.39 each
8 fr. size in lots of 5 - - 2.19 each



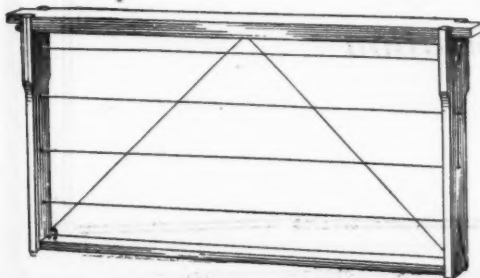
Comb Foundation

Medium Brood, 5-lb. Boxes - - - - - 70c per lb.

Our Thrifty comb foundation will save you money on purchase price and honey crop. Fresh foundation! That is the reason bees work on any brand of foundation first—Our production per day is 1,200 lbs. We make it fresh—you and your bees will like it. For 100% non-sagging combs, wire like the picture of the frame.



| | Sheets to lb. | 1 to 4 lbs. | 5 to 24 lbs. | 25 to 50 lbs. |
|-----------------------|---------------|-------------|--------------|---------------|
| Heavy Brood..... | 6½ | \$0.72 | \$0.65 | \$0.60 |
| Medium Brood..... | 7½-8 | .75 | .70 | .65 |
| Light Brood..... | 9-10 | .77 | .72 | .68 |
| Thin Surplus..... | 28-30 | .85 | .75 | .70 |
| Ex. Thin Surplus..... | 30-32 | .87 | .78 | .73 |



FRAMES

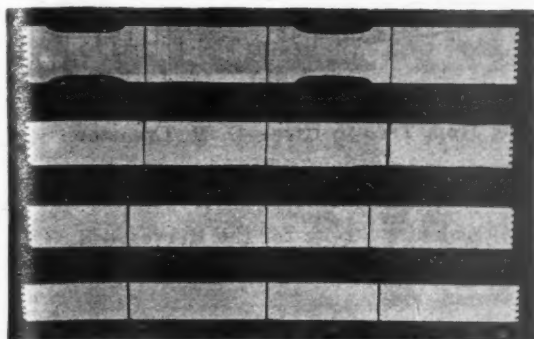
| | |
|------------------------------------|----------------|
| Hoffman Heavy Corner Cut..... | \$5.45 per 100 |
| Shallow Ext. Frames 5⅜ inches..... | 4.35 per 100 |
| Shallow Ext. Frames 4½ inches..... | 4.35 per 100 |
| Shallow Ext. Frames Heavy Top..... | 5.00 per 100 |
| Metal Spaced Frames..... | 7.25 per 100 |

See Next Page

The Fred W. Muth Co. →

Sections

Clear Basswood—sharp knives—careful selection of grades and perfect packing make our quality stand out as one of the best. See our guarantee.



| | 100 Lot | | 500 Lot | | 1,000 Lot | |
|--------------------|---------|--------|---------|--------|-----------|---------|
| | No. 1 | No. 2 | No. 1 | No. 2 | No. 1 | No. 2 |
| 4 1/4 x 1 7/8 Sec. | \$1.30 | \$1.20 | \$5.85 | \$5.55 | \$11.35 | \$10.60 |
| All plain sizes | 1.15 | 1.00 | 5.35 | 4.70 | 10.40 | 9.40 |

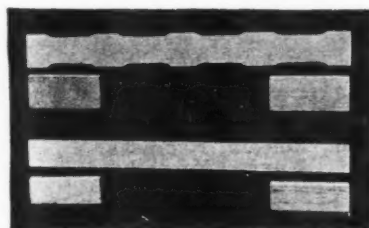
Hive Bodies

These are the same as one-story hive but without covers or bottom boards. Quality with saving is what you buy when you deal with Muth. Get our complete catalog—Free.

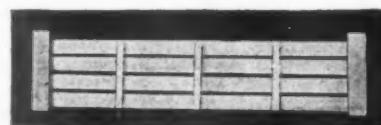
5-10-Frame Bodies with Frames.....\$6.20 per crate
5- 8-Frame Bodies with Frames..... 5.65 per crate



Section Holders



100 Lots
Scalloped Section Holder.....\$3.75
Plain for 4 1/4 x 1 1/2..... 3.40
Plain for 4 x 5 x 1 3/8..... 4.40
Fences, either size..... 5.80
Wood Separators..... 1.35

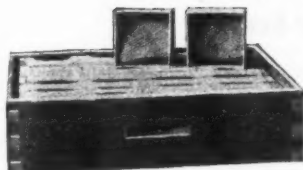


Comb Honey Supers

Complete but without Sections or Foundation (4 1/4 x 1 7/8 size)

5-10-Frame No. 1 Supers.....\$4.00
5- 8-Frame No. 1 Supers..... 3.85

See our catalog for other sizes.



Muth's Ideal Bee Veil

160,000 sold is proof that this veil is what beekeepers want. There are others that look like this veil but there is only one Muth Ideal Bee Veil. 90c each.



Our Unconditional Guarantee

Our supplies are manufactured under the greatest labor saving system. We sell direct to beekeepers and associations—you save the difference. If our supplies are not equal to the best that you can buy, ship them back and we will pay the freight both ways. You are the judge.

Fred W. Muth
President

The Fred W. Muth Co.

"The House of Personal Service"

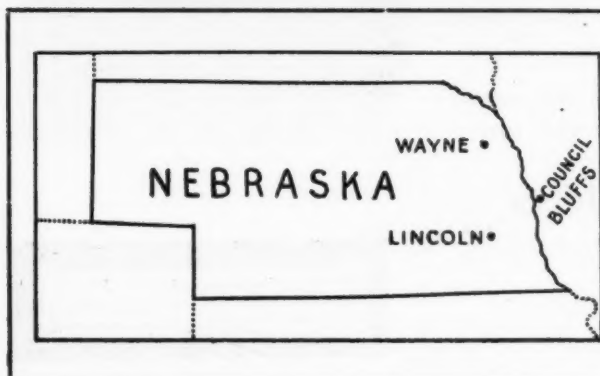
Pearl and Walnut Sts.

Cincinnati, Ohio

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"Nebraska Producers"

One of these distributors of Root's Guaranteed Quality Supplies is near you. Drop in and see him when you can.

Remember, too, that there are large stocks at these points, and that your order will have the very best of deliveries:

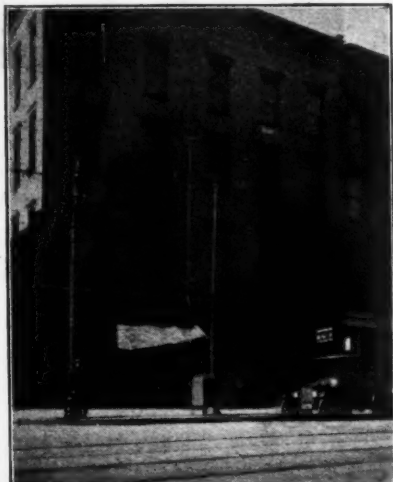
The A. I. Root Co. of Iowa, Council Bluffs, Iowa.
Griswold Seed & Nursery Co., Lincoln, Nebraska.
Carhart Lumber Company, Wayne, Nebraska.

YOU BUY **BEES AND QUEENS** IN ONE OF ? **On Trust or on Certainty** TWO WAYS 4-Hands

You either know you are going to get good queens and bees or you hope you are.
Hope may result in poor stock, delay, loss of colony and no honey. Knowledge means first-class stock, prompt delivery, courteous treatment, satisfaction and profit.
When you mail your order to FOREHAND you know you are buying QUEENS AND BEES on certainty. How about your next order?
Untested queens: 1 to 12, \$1.00 each; 12 to 25, 85c each. One pound bees with queen, \$3.25; two pounds bees with queen, \$5.25; 3 pounds bees with queen, \$6.25; 10 or more packages of either, 25c less per package.
POSTAGE PAID ON BEES AND QUEENS. Satisfaction and safe delivery guaranteed. REMEMBER, THE PRICE IS PRE-PAID ON PACKAGE BEES. Write for prices on large lots.

N. FOREHAND

GONZALEZ, FLORIDA



Lewis Beeware Dadant's Foundation

In Albany, New York ready for shipment

Walter Severson, well acquainted with New England conditions and a New Yorker himself, is in charge of our big stock of goods at the office and warehouse shown at the left. He can advise New England beekeepers on their problems, and his one job in 1925 is to give prompt shipment of your orders and to answer your letters at once. Ask him for a free copy of "How to Produce Honey."

G. B. Lewis Company ¹⁰Tivoli St. Albany, N. Y.

THE DIAMOND MATCH CO.

APIARY DEPT.

MANUFACTURERS OF BEEKEEPERS' SUPPLIES

CHICO, CALIFORNIA, U. S. A.

The entire resources of this great plant are now near to you

DIAMOND Hives.
STERLING Hives.
(With metal covers)
Dadant Hives.
Extracted Honey Supers.
Comb Honey Supers.
Sections.
Diamond Foundation.
Beekeepers' Tools, etc.



The Diamond Match Co.'s Factories and Yards at Chico, Calif., cover 220 acres.

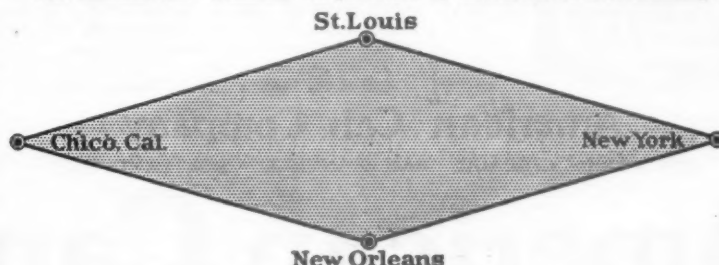
DIAMOND Hives.
STERLING Hives.
(With metal covers)
Dadant Hives.
Extracted Honey Supers.
Comb Honey Supers.
Sections.
Diamond Foundation.
Beekeepers' Tools, etc.

To meet the ever increasing demand for "Diamond" Beekeepers' Supplies, distributing warehouses have been established at Ozone Park, New York, (Hoffman & Hauck); St. Louis, (The Diamond Match Co.); New Orleans, (The Diamond Match Co.) This will enable Beekeepers to obtain their supplies promptly and at a greatly reduced cost

PRICE

Every dollar paid stands for actual value received; no money that is paid is wasted in inefficient methods or by lack of intelligent foresight. From the falling of the tree to the finished hive, no middleman takes out a profit; full advantage of this saving is given to the purchaser.

Our Emblem the "Diamond" is protected by excellence of workmanship



THE DIAMOND POINTS OF DISTRIBUTION

QUALITY

Diamond Hives, etc., which are manufactured from Sugar Pine from our own forests present every desirable feature, and embody every improvement in design and betterment in construction. Diamond Hives have a reputation for high quality well nigh world-wide.

Beekeepers who study economy should consider the use of the Diamond Standard Supplies in their apiary. Diamond Foundation is uniformly excellent and means Foundation Satisfaction.

Write the Diamond Match Co., Apiary Dept., Chico, Calif., for free catalog. Send all orders and inquiries to Chico, Calif. Shipment will be made from nearest distributing point named above.

Last August we received from you 100 lithographed honey pails, in three sizes which we used in our display of honey at the last Ohio state fair, to very good advantage, and I hardly feel it fair not to tell you of our success, in as much as these beautiful pails had so much to do with our winning.

I won second prize in individual display of bees and bee products. (\$30.00) And Franklin county Association won first prize (\$125.00) in competition with five other County or District Bee-keepers Association displays, which was won very largely we were told through our efforts and with these beautiful lithographed pails.

THESE two paragraphs, taken from a letter written by R. D. Hiatt, Deputy State Apiarist, Department of Agriculture of the State of Ohio, prove the value of Canco decorated cans to honey packers.

If Canco cans do this for one man, don't you think they will help sell your honey as easily?

Write for sample and details

Complete line of Canco decorated pails and cans distributed by:

DADANT & SONS, Hamilton, Ill.

G. B. LEWIS COMPANY, Watertown, Wis.

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408-410 12th Street Lynchburg, Va.

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23 W. 3rd Street, Sioux City, Iowa.

415 S. St. Francis Street, Wichita, Kan.



American Can Company

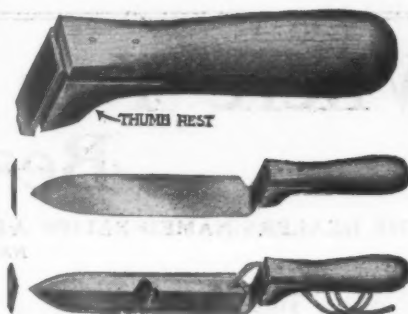
NEW YORK CHICAGO SAN FRANCISCO PORTLAND, ORE,

American Can

CONTAINERS OF TIN PLATE • BLACK IRON • GALVANIZED IRON • FIBRE



**NEW BINGHAM
BEE SMOKER**

**Woodman's
Bingham
Smokers and
Knives**


The genuine Bingham Knives are still made by some of the same workmen that made them over 45 years ago. They are made of the finest quality crucible sheet steel that money can buy. Old-timers will remember the high quality, thin-bladed Bingham Knives. Of late there have been many imitators, where the quality has been sacrificed to cheapen the price. Insist on the genuine Woodman Bingham old-time quality knife. If your dealer cannot supply you, order direct from the manufacturers.

PRICE LIST OF BINGHAM SMOKERS

| | Size of Stove | Each | Wgt. |
|---------------------------|---------------|--------|---------|
| Big smoke tin with shield | 4 x 10 | \$2.25 | 2½ lbs. |
| Big smoke tin, no shield | 4 x 10 | 1.75 | 2½ lbs. |
| Smoke Engine, tin | 4 x 7 | 1.50 | 2 lbs. |
| Doctor, tin | 3½ x 7 | 1.25 | 1½ lbs. |
| Conqueror, tin | 3 x 7 | 1.00 | 1½ lbs. |
| Little Wonder, tin | 3 x 5½ | .90 | 2 lbs. |

Smoke Engine, Doctor or Big Smoke with shield in copper, \$1.00 extra.

PRICE LIST OF BINGHAM KNIVES

| | Each | Wgt. |
|---------------------------------------|---------|--------|
| Steam Heated, one stem, 4 ft. tubing | \$ 4.00 | 40 oz. |
| Steam Heated, two stems, 8 ft. tubing | 5.00 | 40 oz. |
| Bingham Knife, 8½-inch | 1.35 | 20 oz. |
| Bingham Knife, 10-inch | 1.50 | 24 oz. |
| Steam Generator, copper | 2.50 | 40 oz. |
| Steam Generator, galvanized iron | 2.00 | 40 oz. |
| Generator Support | .75 | 20 oz. |
| Torch for gasoline or kerosene | 9.00 | 7 lbs. |
| Torch, gasoline, smaller size | 5.00 | |
| Extra tubing for knives, per foot | .20 | |

Our steam knives are tinned on the inside, to keep them from rusting

Special Bee Hive Sale

These hives are made of the best Northwestern Soft Pine and the workmanship is equal to any on the market. With this mill run stock, the inspectors have let a few small sound knots pass, but much of it will be found perfectly clear stock. This is the greatest beehive value that has been offered in years. Order early while you can get this stock and avoid transportation delays.

| | |
|--|---------|
| Pack of five one-story, 8-frame hives, wood covers | \$ 9.50 |
| Pack of five one-story, 10-frame hives, wood covers | 10.35 |
| Pack of five one-story, 8-frame hives, metal roof covers and inner covers | 11.80 |
| Pack of five one-story, 10-frame hives, metal roof covers and inner covers | 12.75 |
| With slotted bottom bar frames, 10c per hive extra | |

A. G. WOODMAN CO.

Grand Rapids, Mich.

Five Branches with complete stocks in active charge of our own managers, whose sole job is to ship your orders at once

Address G. B. Lewis Co., 10 Tivoli Street, ALBANY, N. Y.; 408-10 Twelfth St., LYNCHBURG, VA.; 844 North Front St., MEMPHIS, TENN.; 415 South St. Francis St., WICHITA, KANS.; 23 W. Third St., SIOUX CITY, IOWA.

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THE DEALERS NAMED BELOW ARE PART OF 400 LEWIS DEALERS ALL OVER NORTH AMERICA:
NAMES IN CAPS CARRY CAR LOT STOCK

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Kundert Bros., Monroe.
Wm. Gerrits Hardware Co., Waupun.

Send for Free Copy of "How to Produce Honey."



"Eat More Bread and Honey"

LEWIS BEEWARE

G. B. LEWIS COMPANY

ESTABLISHED IN 1874

Home Office and Works—Watertown, Wisconsin, U. S. A.



Vol. LXV—No. 5

Hamilton, Illinois, May, 1925

Monthly, \$1.50 a Year

North Dakota Honey Plants

By O. A. Stevens.

NORTH DAKOTA is a young state in many ways. Ten years ago very little was heard there of honeybees. If the subject was mentioned the listener usually showed a mild curiosity as to whether honeybees could be kept to any profit. Sweet clover, likewise, was unknown as a crop. It grew by the roadsides and in quantity on the overflow lands of the Missouri River. Occasionally a farmer discovered a volunteer stand and fancied himself to have fallen heir to a fine crop of alfalfa.

Rumors had begun to circulate that sweet clover was grown for forage in some older states. There came a demand for seed, the price shot above that of alfalfa and the plant suddenly loomed as a profitable seed crop. Finally it was discovered that honeybees could live in the state and that sweet clover furnished an admirable source of honey; that the long, sunny days, followed by cool nights, were ideal for nectar flow and that large yields of honey could be obtained. Opinions still differ as to whether the white (*Melilotus alba*) or yellow (*M. officinalis*) is the more desirable for forage, but more of the former is grown. The Hubam variety has been planted only a little. Most commonly the seed is sown with a grain crop.

The cultivated honey flora of North Dakota is limited chiefly to sweet clover and alfalfa. Sweet clover can be grown under a variety of conditions, but has been grown most extensively in the eastern part of the state. Alfalfa has been grown quite largely for the seed, also, and the eastern part of the state is less well adapted to seed production, so that its acreage has been more to the westward. The flowering period begins for alfalfa June 12, yellow sweet clover June 5, white sweet clover June 27. The first cutting of alfalfa commonly is cut for hay, and the sweet clover often is clipped before flowering to produce a shorter second growth.

The other clovers have been unimportant. Quite a little red clover is grown in the southern two counties of the Red River Valley and some in the Turtle Mountains, but scarcely elsewhere. White clover

(*Trifolium repens*) seems not very hardy and little is seen. Alsike (*T. hybridum*) is frequent, but accidental rather than otherwise, and given little attention.

Buckwheat (*Fagopyrum fagopyrum*) is grown to some extent, but the local market for the seed is weak and fields are only occasionally seen. Fruit trees and bushes also are limited. Currants, plums and raspberries are the most frequent. Strawberries are uncertain from lack of rainfall, and only a few varieties of apples are hardy.

The native and naturalized honey plants are quite abundant and of many species. The state is almost exclusively a prairie country, yet trees and shrubs are of importance in certain sections. The writer has kept many flowering records, chiefly those of first flowers, since 1910. The dates mentioned are for the Fargo region. The extreme southern part of the state would be expected to be two or three days earlier, the northern a week later.

The opening of the season occurs about the middle of April, although warm days may be comparatively few and of uncertain appearance until a month later. From the weather reports (Moorhead, Minn.) it appears that the first day with a mean temperature above 40 degrees has ranged from March 8 to April 16, average March 26 for fifteen years. With the first warm days about this date the pasque-flower (*Pulsatilla hirsutissima*) blooms in lavender masses over the prairie. This probably is of some importance as a pollen plant. My records for the silver maple (*Acer saccharinum*) average April 10. The flowers of this are visited freely, but the tree is not native and is planted only to a limited extent.

The first of the native trees is the buffalo berry (*Lepargyrea argentea*), April 20. The abundance of small yellow flowers of the staminate trees are conspicuous on the leafless trees and attract insects in numbers, yielding both nectar and pollen. The tree is found chiefly in the western part of the state and should be of considerable importance. Box elder (*Acer negundo*) is a well distributed

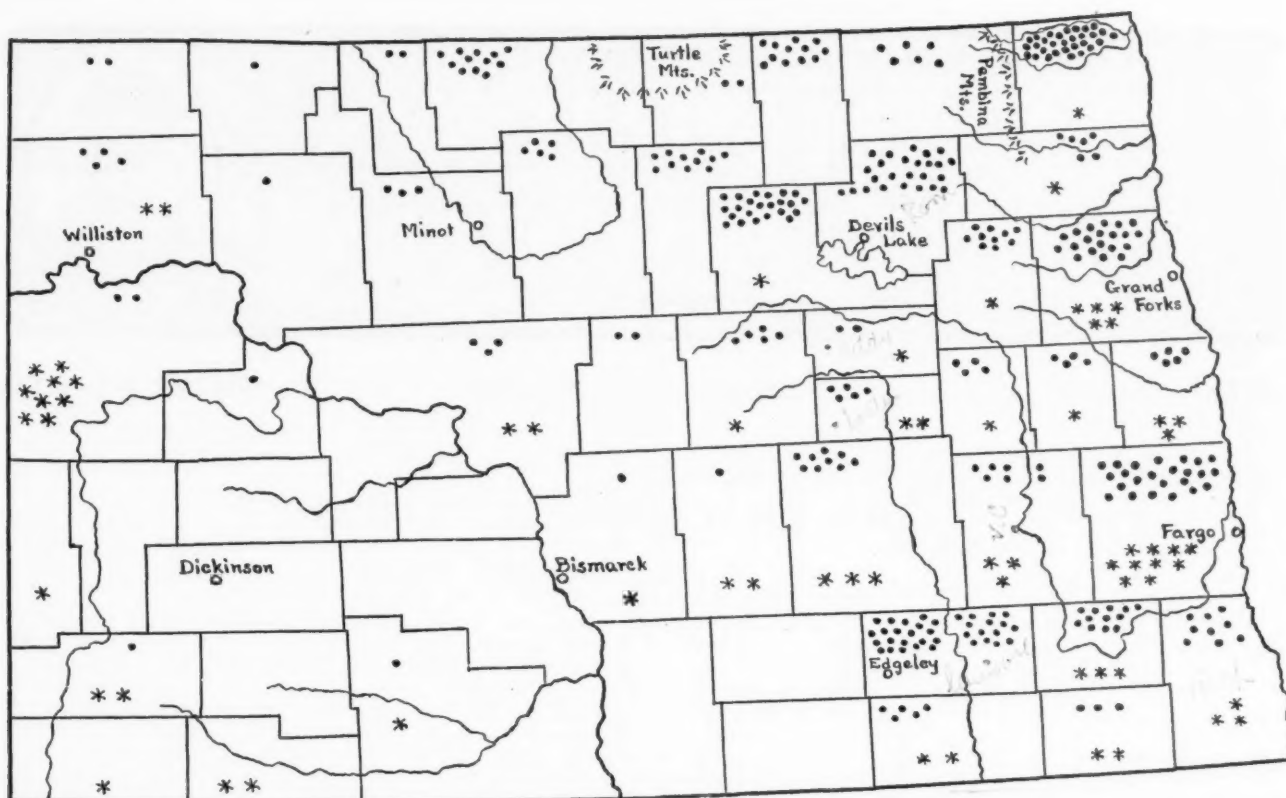
native tree and planted extensively for shade and windbreak. It is visited eagerly by the bees when it flowers, April 25. Cottonwood (*Populus deltoides*) is abundant along the Missouri River, aspen (*P. tremuloides* and *P. balsamifera*) chiefly in the Turtle and Pembina Mountain districts.

Willows (*Salix*) are common in most parts of the state and cover a large amount of the lower ground along the Missouri River. The different species give a succession of bloom. *S. discolor* is the earliest (April 23), but not so common, *S. bebbiana* more common. They are followed by *S. cordata* (April 27), *S. amygdaloides* (May 15) and *S. interior* (May 23), all of which are common. The golden willow (*S. vitellina*) is planted commonly—May 5.

The wild plum and chokecherries form another series. *Prunus americana* (May 10), growing in great thickets in the eastern part and in the coulees westward, *P. pennsylvanica* (May 15) sometimes locally frequent in the eastern part, and *P. virginiana* (May 20) very common. The hawthorn, or red-haw (chiefly *Crataegus chrysocarpa*) is distributed much the same as the wild plum, common but scarcely abundant.

The basswood (*Tilia americana*) is abundant along the larger streams in the eastern and northeastern portion, flowering about July 15. Of other woody plants the wild red raspberry (*Rubus strigosus*) is probably one of the most important, being common among the woods and thickets in the eastern part and less commonly about thickets of the coulees in the central part. It begins to flower about June 15. Wild grape (*Vitis vulpina*) and Virginia creeper (*Parthenocissus quinquefolia*) are frequent in the woods, but hardly common. The wild black currant (*Ribes americanum*) is common and is the most important species of that genus (May 15).

One bush which should not be overlooked is the wolf berry (*Symphoricarpos occidentalis*), usually called "buckbrush". In the woods and thickets of the east it may reach a height of three or four feet. Throughout



Principal streams and acreage of sweet clover and alfalfa in North Dakota. Each dot represents 500 acres of sweet clover planted in 1922 and each star the same for alfalfa. (From 18th Bienn. Report of the Com. of Agri. and Labor). Counties remaining blank reported less than 250 acres. Totals for the state, sweet clover 143,093, alfalfa 35,699. For the current year, this map serves only as a comparison, as the figures are now different.

much of the prairie it appears in frequent patches. The flowers are visited freely and come during July, where it helps to form a connection between spring and fall flora. Sumac (*Rhus glabra*) I have seen in quantity at Devils Lake, but it is local. *R. trilobata* is frequent in the western part. Prickly ash (*Xanthoxylum americanum*) is locally frequent in eastern section.

Among the native and introduced herbaceous plants the dandelion is exceedingly abundant in the Red River Valley. Its flowering at Fargo begins May 1 (a few days earlier on sunny slopes) (but the chief period is from about May 15 to June 1, when the entire landscape is yellow with it. The plants produce few flowers during summer, but a second, although comparatively light, blooming period extends from late September to the first week in October. The last collecting of the bees usually is on these heads the first week in November, when they still open feebly.

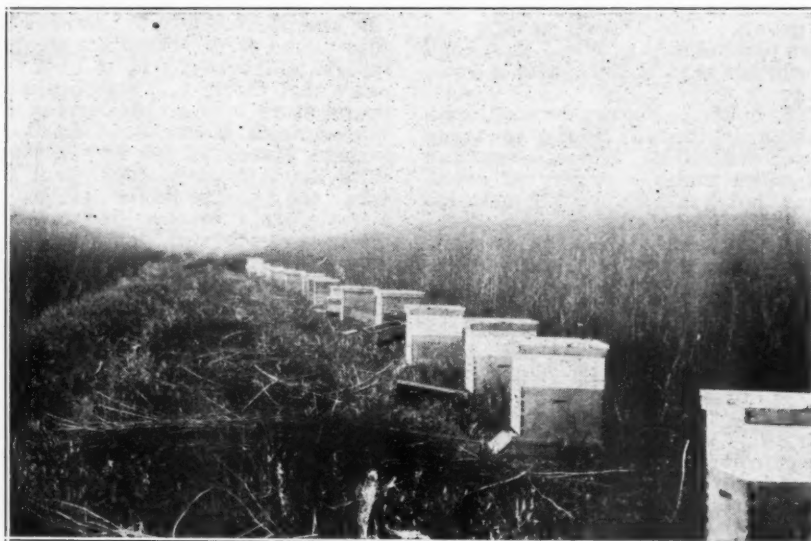
A relative of the dandelion, the sow thistle (*Sonchus arvensis*), has become quite too common in the eastern and northeastern sections in recent years. Its flowering period is July 1 to August 20, a small number of heads continuing until heavy frosts. Canada thistle (*Carduus arvensis*) has the same general distribution and begins flowering July 30. The blue wild lettuce (*Lactuca pulchella*) is a common native perennial all over the state and often appears in quantity in waste ground or neglected fields. Its flowers are visited

freely by insects and probably it contributes to the honey supply July 3).

Legumes other than alfalfa and sweet clover are unimportant. Some fifteen species of milkvetch are found on the prairies, but they are better adapted for bumblebees or other long-tongued forms. *Astragalus flexuosus* is one of the species which is most common and produces a quantity of flowers which are small for the genus. I have seen honeybees working upon *A. hypoglottis*, a form with somewhat larger flowers which produces large patches of flowers in

late May. Another small flowered species is *Homalobus tenellus*, common in some places in the central and western parts. The prairie clovers (*Petalostemon purpurea* and *P. candida*), leadplant (*Amorpha canescens*) and *Lotus americanus* are others which are common.

Another group of plants which should not be overlooked is the mustards. These are very much at home here; three species are especially common and are visited quite freely by bees. These are *Brassica arvensis*, *B. juncea* and *Sisymbrium altissi-*



Bees set in sweet clover field with a swath cut to accommodate them.



Cattle pastured on sweet clover do very well, more heads to the acre and more results than blue grass

mum. The last named is the tumbling mustard and one of the most common of weeds, especially in the central and western sections. June is their flowering month.

The Rocky Mountain bee plant is abundant in sandy soils in some of the southern portions. I have seen great quantities of it in Dickey County. The smartweeds (*Polygonum*) are not so well represented as farther south. *P. lapathifolium* is common, as is also *P. muhlenbergii*, but *P. pennsylvanicum* and *P. persicaria* are too infrequent to be of interest. Several species of the mint family are common, but of little value so far as I am aware. The catnip is frequent only in some localities. Wild mint (*Mentha canadensis*) is common along the streams and in low ground throughout the state, as are also germander (*Teucrium occidentale*) and hedge-nettle (*Stachys palustris*). The blue flowered giant-hyssop (*Agastache anethiodora*) is a common plant near the woods and frequent in thickets or coulees throughout.

Wild roses and strawberries in one form or another are common in both woods and prairie. The fireweed (*Chamaenerion angustifolium*) is found in various parts of the state, but I think rarely, if ever, in quantity. Of the carrot family, meadow parsnip (*Zizia aurea*) is common, especially about woods in the eastern part, and is visited freely by bees. *Z. cordata*, which is common in low places all over the prairie, is not visited as much so far as the writer has observed. Cow parsnip (*Heraclium lanatum*) is common in the woods also.

As in other prairie states, the composites are well represented in the late summer and fall flora. Gumweed (*Grindelia squarrosa*) is abundant especially in over-grazed pastures, flowering in August. Of the asters, *A. multiflorus* in dry soils and *A. paniculatus* in low ground are probably the most important, both species flowering well into September.

The goldenrods are represented by *Solidago canadensis*, generally common; *S. serotina*, frequent about ditches or thickets; *S. rigida* and one or two less common ones on the prairie. *S. graminifolia* is quite abundant in the sandy soils in Richland and McHenry counties. *Helianthus maximiliani* is the most abundant of the sunflowers, although *H. petiolaris* is locally common in sandy soils, and two or three other species are frequent or locally common. The coneflowers are well represented, the principal one being *Rudbeckia laciniata*, which is very common in wooded places and begins to flower July 25. Beggarticks add some to the late flowers, *Bidens vulgata* being common in low places over a large part of the state.

If we consider the state by sections, several natural areas may be mentioned. By eastern and north-eastern, I refer chiefly to the Red River Valley and a more or less triangular area extending from about the latitude Grand Forks northwestward. In this portion occur most of the woods along the Red River of the North, the lower parts of its larger tributaries, in the Devils Lake, Pembina Mountain and Turtle Mountain regions. The Turtle Mountains are somewhat isolated, but have an affinity with the territory eastward and northward. They comprise a rolling plateau, originally wooded, abounding in small lakes and ponds. Willows, chokecherry, raspberry, other shrubs and woodland herbs are abundant.

The Missouri River Valley has always seemed to the writer a favorable location. The lower ground has large areas of willow, dogwood, wild rose and other shrubs. Sweet clover early became established there and makes a large growth, as I can testify after trying to make my way through masses of it reaching above my head. Much of this brush land is being cleared and is well adapted to alfalfa, which often is seeded with little

preparation of the ground. Buffalo berry is abundant on the higher levels and on the hillsides.

Outside of these districts one must depend upon the local conditions, prairie flora and cultivated crops, chiefly alfalfa and sweet clover, and more particularly the latter.

Fire at Lewis' Albany Branch

As the result of a fire which started in a part of the building at Albany, New York, not occupied by the warehouse, the stock of the G. B. Lewis Company of Albany was practically destroyed by fire the night of March 31.

The new location of the G. B. Lewis Company of New York is at No. 10 Tivoli street, Albany, and a complete stock of goods to replace the approximately eight cars destroyed by fire is on hand at new address.

We knew the beekeepers of New England would be considerate of our difficulties, and want to thank them for their patience in waiting for shipment of goods that would have been shipped promptly except for the fire. The loss was covered in full by insurance.

G. B. Lewis Co.

Conditions in New Hampshire

New Hampshire has had an especially early season and a rather mild winter, so that bees that were in good condition last fall came through in good shape this spring. The prospects are bright for a good honey year. The fruit growers are beginning to realize the value of bees in the pollination, and since New Hampshire's two leading apples, the McIntosh and Baldwin, are both self-sterile, beekeeping is likely to receive a decided impetus if it is possible to control disease.

Beekeeping In Homemaking

The Iowa Beekeepers' Bulletin, published by the Iowa State College Extension Service, in its April number, lays stress upon the necessity of homemakers to study numerous ways of adding to the family income, by small fruits, vegetables, poultry, dairying and beekeeping. What is worth doing at all is worth doing well, and the beekeepers of Iowa are taking considerable interest in the Iowa Beekeepers' Bulletin.

Bulger To Washington

Dr. J. W. Bulger, from Ohio State University, has been appointed Assistant Apicultural Physiologist for the U. S. Bee Culture Laboratory. He will undertake new researches in bee behavior.

Making Letters Boost Product

Maybe there is a suggestion for honey producers in this:

A business man in Biola, Calif., a raisin-growing community, gave orders that the question, "Are you eating raisins?" be written in just before the "Yours truly" in every letter sent out by his firm.



EDITORIAL

AMERICAN BEE JOURNAL



Established by Samuel Wagner in 1861.

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C. P. Dadant, Editor; Frank C. Pellett, Associate Editor.
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SUBSCRIPTION RATES:

In the United States, Canada and Mexico, \$1.50 per year; three years, \$3.00. Other foreign countries, postage 25 cents extra per year. All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

"Langstroth" vs. "Hoffman" Hives and Frames

There appears to be some confusion in the minds of many beekeepers concerning the above names.

There is no such thing as a Hoffman hive and, although many people and some manufacturers offer Hoffman frames for sale, when they mean Langstroth frames with Hoffman spacing shoulders, it should be understood that the name of Hoffman was applied to the self-spacing feature of the frames, whether of Langstroth size or of other sizes.

We might say also that all hanging frames are really Langstroth frames, for Langstroth invented the principle of the hanging frame and did not use the Hoffman spacing shoulder, for the very good reason that it was not yet invented when Mr. Langstroth offered his patent hive. You may make frames of any size whatever; if they have the Hoffman shoulders to space them automatically, they are Hoffman frames. But there is no such thing anywhere as a Hoffman hive.

The Hoffman frame was not popular with the practical beekeepers of the old days, because, before the invention of comb foundation, it was often necessary to change the spacing of combs slightly, when they were handled and not put back in the original order, owing to slight waves in them which interfered with the travel of the bees. But at the present day, with combs built on foundation and nearly always straight as a board, the advantages of Hoffman shoulders for spacing the frames is made more prominent; for with them beginners cannot make the mistake of putting too few or too many combs in a hive body. It is quite probable that the Hoffman idea has come to stay.

State Lists of Beekeeping Officials

Our people are preparing lists of "Who is who" in beekeeping. But as there are constant changes, we will keep the lists open and will send them to subscribers desiring them on request.

We ask that the changes of officials be notified to the management of the American Bee Journal, as they occur. The names we want are: Inspectors of apiaries, teachers and extension men in beekeeping, state secretaries of beekeepers' associations.

These lists will be intended to cover the United States and Canada.

Boys' and Girls' Clubs

The Oregon Agricultural College, through H. C. Seymour, State Club leader, is sending out some blanks to the members of the Boys' and Girls' Clubs to be filled concerning their beekeeping, showing crop expenses and receipts. It is a very good feature, for it will cause them to ascertain whether they are making their beekeeping profitable, and if not, where the trouble is. More of this is needed, not only among the boys and girls, but also among the grown-ups.

Begging Your Pardon

In the item, on page 181 for April, entitled "Queen Importation Rules," the words "export queens for breeders" should read "import queens from breeders." This will give a clearer meaning to the item. What a man writes is not always what he means.

Meeting at Platteville, Wisconsin

Mr. N. E. France announces a bee meeting will be held at his home town, July 2. A banquet is to be served in the new Masonic Building, with hot coffee and honey cookies supplied by Mr. France. Beekeepers who are in reach of this spot should attend. We are sure they will have a great time. A bee meeting will take place in one of his apiaries.

Information Free

The Apiary branch of the Bureau of Entomology, at Washington, publishes a list of Bulletins for free distribution. These Bulletins are valuable. If you wish the information, just write to Jas. I. Hambleton, Apiculturist, Bureau of Entomology, Washington, D. C., and he will send you the list. It costs you nothing and will prove useful. Don't delay in asking for it.

Those Two Lines of L. L. Langstroth

The two lines at the foot of page 120 of our March number are: "Journal, July 15th, 1863, interesting observations on fertile workers—same nature as rec. (recorded) in 1881."

The only part of this memorandum that I am not sure about is that word "rec." It might mean almost anything else. Our offer of a year's subscription was not accepted by any one for the solving of the above. It is true that the words are difficult to read.

The Illinois Cyclone

We have received so many kind letters expressing their sorrow at the great loss of life by the March cyclone and their hope that we had not suffered, especially from people living in foreign countries who have no idea of the conditions in the great Mississippi Valley, that we feel in duty bound to say a few words concerning that terrible accident.

There has been no suffering in our part of Illinois. We are located over 200 miles to the north of the path of the cyclone. We did not even have wind enough here to make us fear any accident in any direction. But the damage was terrible in the path of the storm, as most of our readers have heard. Although there are cyclones quite often in the Mississippi Valley, none has ever been so destructive as this one, and they are always local. But the fully inhabited condition of this Valley always makes the cyclones lamentable accidents.

Help from all parts of the country has been coming and the cities will soon be rebuilt.

The Braula Coeca

In mentioning the bee louse and the Department circular on this parasite, I overlooked a mention of it, made in *L'Apiculteur* for February, by Perret-Maisonnette.

According to this writer, the *Braula* is found mainly

in weak colonies with aged queens and in skeps with very old combs. He quotes Marboud, whose article, published in 1907, was reproduced by four different publications in France during that year. Marboud claims that the *Braula* feeds upon the body of the bee, while almost all the other writers agree that it sucks the honey, saliva and brood jelly at the mouth of the bee.

The remedies mentioned by Perret-Maisonnette in the article which we quote, are similar to those given by Dubini: change the old combs for new ones, cleanse the bottom board, sprinkle turpentine upon it, place gum-camphor in the hive, fumigate with tobacco, etc. It is generally agreed that the *Braula* is of little importance, except in the warmer climates, where there is no winter.

Mediterranean Beekeeping

Our old friend Baldensperger has lately gathered together, in a book, under the title of "L'Apiculture Méditerranéenne," a number of articles which he wrote from time to time in *L'Apiculteur*. It makes a work of 96 pages, replete with interesting observations and information on beekeeping from a man who kept bees in Palestine as well as in southern France.

Ph. J. Baldensperger is a tenacious man, whom obstacles and ill-success do not discourage. In this work he gives an account of some of his misfortunes with bees, as follows:

In 1883, an apiary partly destroyed by African lizards (agames); 1884, 80 colonies smothered in transportation; 1888, an overload of taxes from the Turkish authorities; 1889, his bees kill a camel, an ass and a mare; 1890, hornets destroy 13 colonies; 1891, camel carriers overthrow and smother the greater number of his colonies; 1894, American foulbrood invades his apiaries; 1897, an inundation of the River Var carries away ten hives; 1899, nine hives are burned down; 1910, a storm carries away a number of hives; 1911, *Bacillus* pluton invades the apiaries; 1916, an Alpine storm scatters and destroys about 60 hives; 1920, he loses his best breeding queen.

"Are you still going to continue beekeeping in the face of all this?" "Certainly; if there were no difficulties it would be too monotonous." That gives you a picture of the man as we know him.

Thanks To Our Readers and Advertisers

When we assumed the ownership and publication of the *American Bee Journal*, thirteen years ago, the magazine contained an average of 32 pages per month, cover included, or 384 pages per year.

During the last 3 years, after having enlarged the magazine gradually, we published an average of 48 pages, or 586 pages. During 1923, the total number of pages was 636.

Last month, April, has 50 pages, cover included. This is always the best month for advertising in the bee line, and this number contains the largest amount of advertising we have ever achieved and very probably the largest that any bee publication has ever reached. This is a matter for self-congratulation and for thanks to both our advertisers and our readers, for it would be out of the question to publish a bee magazine and make expenses were it not for the help that advertising gives. This will enable us to do better and better in the publication of contributions and the printing of cuts. It shows also that the readers and advertisers appreciate the value of the "old reliable" as a medium between each other.

We propose to give a better and better magazine as we go. This aim seems to be appreciated by the beekeeping public. Accept our thanks.

Holy Smoke

On page 220, one of our contributors tells us how to make good smoke. Take some cobs and dip them into the worn-out oil from your "Tin Lizzie." Yes, that must surely make smoke, but I would call it by another name than "holy smoke." At any rate, don't use that kind of smoke on comb honey. It must give the worst possible odor, and as for myself, I would resort to some other stench.

Beekeeping Along the Saguenay

Concerning our editorial of April, page 160, on beekeeping along the Saguenay, our good friend Verret, of Charlesbourg, Quebec, comments as follows:

"You do not seem to be well posted upon what the old French settlers called the 'Royaume du Saguenay.'"

"When you go to the Saguenay by boat, you see nothing but hills, from 25 miles east of Quebec to Tadousac and up the Saguenay. But behind the chain of hills, called the Laurentian Mountains (Laurentides in French), there is the Valley of Lake St. John, in which nearly 100,000 people live, in a very fertile country, with a climate as temperate as that of Quebec. There is a railroad line from Quebec to Lake St. John which is reached at Chambord, a distance of 176 miles. There the line branches to Chicoutimi and Bagotville. Some 50 years ago they made a wagon road to St. Jerome. Before long, there will be an automobile road all the way.

"In prehistoric times, Lake St. John, which was much larger than now, emptied its waters into Hudson Bay. But a cataclysm opened the Saguenay and the water took the south direction, through the gap. Hence the fertility of the valley of Lake St. John, but the arid hills extend only 90 miles north of Quebec. There are bees everywhere in the Lake St. John region."

Jacques Verret.

We might add that, according to Agassiz, the Laurentian Hills were the first American land lifted above the ocean. The Lake St. John Valley is no farther north than the south part of Manitoba, below the 50th degree.

Home Again

After three months spent in the field in Texas, New Mexico, Arizona and California, our Associate Editor, Frank C. Pellett, has returned to the office.

He brought back a large amount of interesting material, including several hundred photographs and voluminous notes concerning beekeeping conditions in the southwest. Some of this material will be used in a revised edition of *American Honey Plants* at a later date when the present edition is exhausted. Owing to the large amount of material which has accumulated in the office, it will be several months before we can find room for some of the things which we plan to use in the *Journal*, but, beginning with the June number, Mr. Pellett will have a series of articles concerning the states which he visited.

Watch For Paralysis

The disease of adult bees, *Acarapis woodi*, is being found so widely scattered in Europe that a further search should be made to ascertain whether or not the mites exist in this country.

Beekeepers finding any adult bees that show abnormal conditions should send samples to the office of Bee Culture, Washington, D. C., for examination. For the past few summers a considerable number of samples of adult bees were examined and no mites were found. This season the co-operation of beekeepers is needed in making possible such a thorough examination of diseased bees that we may know definitely whether any of these mites, *Acarapis woodi*, are present anywhere in the United States.

Merrill Resigns

We learn with regret of the resignation of Dr. J. H. Merrill of the Kansas College of Agriculture. Doctor Merrill has done some research work of outstanding importance in the beekeeping field, and we consider it unfortunate that he is discontinuing that line of investigation at a time when his work is attracting much favorable attention. However, our good friend is not deserting the industry, for he expects to take up commercial honey production and fruit growing in his native state of Massachusetts.

The good wishes of a large number of readers of *American Bee Journal* go with the Merrill family to their new field.



One of the apiaries where Pettit honey comes from.

Through the Year With Extracted Honey---No. 1

By Morley Pettit.

IN extracted honey production it is necessary to have strong colonies, to hold them together without swarming, and to give them plenty of supers to store and time to ripen all they will gather. The honey must be extracted in a cleanly manner, graded properly and marketed in an attractive form. In the various operations which this involves the producer must have an eye to his own welfare by using such tools, machinery and methods as will reduce his cost of production to a minimum in order that he may meet competition and secure a fair profit on his investment, risk and labor. That is a very large order in these difficult times; but I shall endeavor to take you through the leading events of a year's work in The Pettit Apiaries and perhaps some of our methods and ideas may be generally helpful.

It is not easy to say just when the year begins in the apiaries. In about one hundred and fifty of our colonies the past season it began when Southern packages of bees were introduced to that many hives very early in May. They were two-pound packages, mostly young bees and young queens, and each was given two or more combs of honey saved from the previous season, with worker combs for the balance of the broodchamber. Some of the queens failed and were replaced at small cost by the breeder. That is, he knew some would likely fail and mailed some extra queens a little later, just in time for us to use. I do not know whether that is common practice with southern shippers, but it seems like a good one, from our standpoint. In an average season packages produce as much as average wintered colonies and without trying to swarm. If good packages from reliable shippers are hived on combs and honey stores, in winter cases about the first of May, I

believe they are quite as profitable as wintered colonies, considering all the saving as balanced against their cost.

In continuous colonies the year may be said to begin when the new queen is introduced and begins to lay. The date of this event is whenever the queen begins to fail or allows swarming preparations under good swarm prevention methods. We endeavor to see every broodnest once in eight to ten days during the active season, and whenever occupied queen cells are found the queen is at once removed and the cells are either destroyed or used in nuclei. We never leave a cell to requeen a colony. On the next visit the colony is given a laying queen, a young one if such is available, or else the old one back again until a young one is ready. A general replacement of old and failing queens is made in late July and in August. When the colony accepts its young queen its year may be said to begin.

The next event in the cycle of the colony is the rearing of copious young for the winter cluster. Our part in this is to provide stores and brooding space in plenty, as well as a good queen. Each hive has a foodchamber in addition to its broodchamber. This has been so placed during the honey season as to be well filled with honey. When the main crop is taken off, August 1, the foodchamber is left on. A super or more of empty combs is also given for storage in case there may be a fall flow. Perhaps it may not be out of place for me to give some personal experience which led up to the use of foodchambers on all our colonies. There are always some of our yards which do not store any honey after the first of August, or earlier. We are never sure which ones will have that experience. After finding some

of our best colonies starved to death when we came to feed them for winter some years ago, we decided that the only safe way was to leave plenty of honey in a super on each hive until we were ready to feed it. Whatever they did not use of this was almost sure to have a little fall honey added to lower its grade. Then it would be extracted and sold for less than the price of sugar for winter stores--at least for less than its original value as clover honey. On the other hand, if we fed sufficient sugar syrup to ensure good spring building up, it so restricted the broodchamber space that very early inspection was required to supply room for breeding and storing. Then the extra broodchamber would be partly filled with spring honey, which not being ready to extract when clover began yielding, would absorb a great deal of clover honey in the process of ripening. This either went in with the main crop to injure its color and flavor or had to be sorted out at considerable further expense and sold at a lower price. While the foodchamber does not entirely remove all these difficulties, it relieves them considerably.

When the supers are finally taken off in September, we note whether much honey has been used out of the foodchamber. If so, the lighter combs are replaced with well-filled ones and it is left directly over the broodchamber without excluder. Again when the hives are placed in winter cases in October any that seem lighter than others are marked for extra feed. On the same day each colony is fed two ten-pound pails of syrup whether it needs it or not. If light, it receives three or four pails. In other words, we want plenty of sugar syrup where it and not the honey will be used during the coldest weather. We also want to make sure

that the foodchamber is so well filled that the queen is not likely to go up there to lay in the early spring. We do not want brood in the foodchamber. "The broodchamber for brood and the foodchamber for food."

After trying various types of winter cases, I have settled on two kinds, the single, which is not unpacked, and the quadruple with collapsible sides for easy unpacking. Our bees are in cases from as early in October as possible until the end of May. We feed in the cases in autumn and super and sometimes clip queens in them in spring. They stand on blocks which just clear them from the dampness of the ground, but the height of stand and bottom packing raise the entrances nearly a foot from the ground. We have three to four inches packing underneath, four to six on sides and about eight inches on top. It is quite possible to have good, strong colonies too warmly packed, as I have found to my sorrow.

If I considered only the bees, I believe all my colonies would be permanently packed in single cases. Good colonies so packed always do well if the season favors. They are less disturbed by extreme weather changes than unpacked colonies and are not roused by restless neighbors on mild winter days as in multiple hive cases. They suffer no inconvenience from changed surroundings as when the whole face of nature, so to speak, is altered by the packing or the unpacking of the apiary. That summer packing helps to control swarming I cannot see, and it does not in our case, for there is just as much swarming impulse in the packed yards as in the unpacked. The big cover shades the supers, it is true, but the packing makes the broodchambers hotter: that is, it keeps them hot all night when a little cooling might be beneficial, so I think the one about balances the other.

From the beekeepers' standpoint, the arguments are these: Single cases cost considerably more than

others per colony. They are more bulky and awkward for moving when an apiary has to be moved. They are more expensive to paint, and, being always exposed to the weather, they require painting oftener than collapsible cases which are stacked in the flat and protected from all the hot sun of summer. They save the annual labor of packing and unpacking, and this is quite counter-balanced by the labor of lifting the big covers off and on every time the colonies are examined, to say nothing of the stones which must weight them against the wind. If they do not have to be packed and unpacked, they do have to be blocked up annually to prevent the bottoms settling into the ground and rotting away. Still this labor is more or less distributed, and it is some satis-

faction when the grind of packing yard after yard brings us to single cases, which do not have to be done in the same way. Our cases all have a top space of super depth and over. In some ways it is more convenient examining broodchambers down in this enclosure, especially if the day is cool or windy.

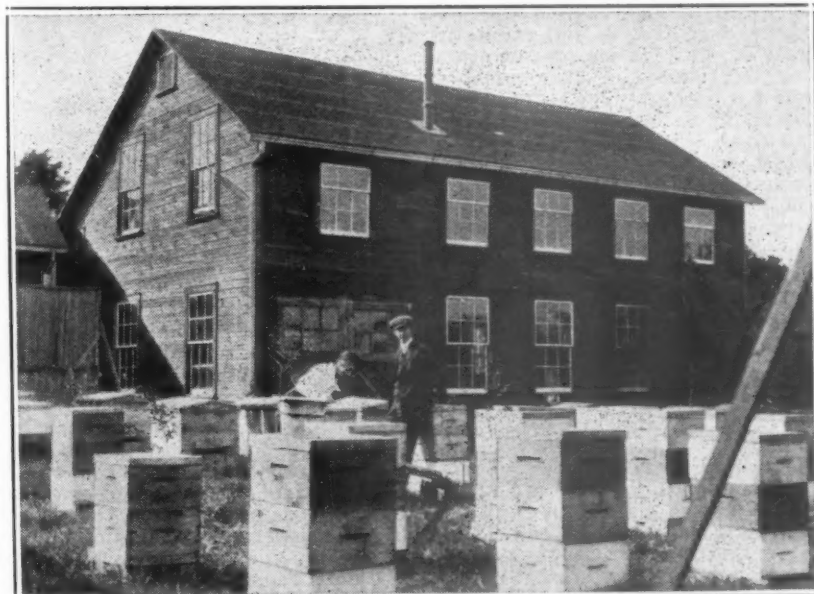
We have perhaps a third of our bees in single cases, the rest in quadruple. Over a series of years and locations I think we secure about the same results from both, and our total of labor on the colonies we unpack annually is somewhat less. If I were going to keep bees without any help, a condition which comes outside my imagination, I think I would use single cases.

The main business of spring in the apiary is to keep all colonies developing rapidly, to provide room for what they may store, to watch out for disease, and to keep them from contracting the swarming impulse. The foundations for good spring development are laid when bees are being prepared for winter as already described. About the first week in May it often turns warm enough to clip queens, and if we have time then, we like to clip them in all the stronger colonies, because they are easier to find than later. The clipping record is very brief, but sufficient. We never clip a queen until she has gone through one winter, so the record of every queen we clip next spring will be the same, "C-25-1." That means that she has gone through one winter. We never try to take a queen through more than two winters, and package queens that have had an express journey and two summers have done their duty. Exceptions to this are special breeders.

With foodchambers on all colonies we do not worry if the first examination is deferred until the middle of May. By the time spring honey storing and heavy brooding begins there is some space in the foodcham-



Slatted windbreak and outdoor wintering cases. Outdoor wintering in southern Ontario is successful, but requires good technique.



Home yard and central extracting house at the Pettit apiaries. A more recent picture would show a large addition.

ber to temporarily defer the crowding which would otherwise take place and to check the swarming impulse which we used to find early in May with the single broodchamber only. Still, we like to get around almost as early as ever, get the tops unpacked and see what is what. There is not likely to be a shortage of stores, but, if there is, we feed some to tide over until they can gather. In hives where a shortage of stores does occur the queen will likely be occupying the shallow as well as the broodchamber. With light topbars and combs perfect up to them, a good queen in a strong colony passes back and forth fairly well. Where the foodchamber is partly empty and the colony is weak, the brood may all be in it. This is not a serious matter, as such a colony is not worth much anyway. The remedy is to keep the hive warm and sufficiently fed until unpacking time, then if necessary place the shallow underneath the broodchamber. If worth saving, the queen will go up and occupy her rightful place. To those who have not had success with foodchambers, I would suggest giving more attention to their queens, then doubling up weak colonies in the fall, so as to have good, strong colonies for winter. If they are then adequately fed and packed as I have tried to indicate, I think they will secure better results.

When giving the second broodchamber in May there are three conditions of the hive which require three different sorts of treatment. First, a normal colony has stores and no brood in the foodchamber. It is full of bees, showing the need of more space. Such a hive is in ideal condition to show off the foodchamber to the best advantage. We lift

it, making a division between brood and food, where we place a set of dark Langstroth worker combs. The queen occupies these right away, and storing of spring honey takes place in the tops of them and in the foodchamber above. The original broodnest is still compact, and the space for storing and brooding is set to the queen's taste. Second, they have eaten through and the queen has brooded to the top of the foodchamber in the middle, and the colony is strong and will stand more room. In that case the extra set of brood combs is placed on top of the foodchamber, and she goes on up into it. Later, when the broodnest has become established in the upper story, the foodchamber is placed above it, probably over an excluder. The third case includes all colonies too weak to require any more space.

This early supering is done inside the packing cases, which are not removed until at least the end of May. It most effectually prevents the early swarming which we might easily have in well wintered colonies. The fresh set of worker combs in which the queen establishes a new broodnest gives conditions similar to those of a newly hived swarm. Later, when the lower story has been practically deserted and cloverflow is beginning, we shut the queen down in it again and place empty combs with excluder between it and the upper brood. For a second time she is given conditions approximating those of a swarm. This is toward the end of June, and it does not take many visits on the eighth or ninth day for broodchamber inspection and supering to bring us to the last week in July—and bee escapes.

(To be continued)

An Outline of Swarm Control

By K. Hawkins.

SWARMING is the normal method of colony reproduction. According to Parks, the stimuli to which the queen reacts to start egg laying are light, heat, moisture, and food. These not only cause egg laying but also the building of queen cells and gauge the time when the swarm shall vacate the hive. The amount of space available in the hive is one of the five circumstances over which man can, if he will, exercise a control that in most cases shall also be a swarm control.

There are many definitions of the causes of swarming. One, commonly accepted, states that an overproduction of brood in proportion to the hive space and season, or the congestion of young bees in the broodchamber, are either causes of swarming or are coincident with the constant emergence of brood or any method of forcing the surplus of young bees out of the brood chamber to other parts of the hive tends to prevent swarming.

This latter conclusion was reached, without experimentation, with the Modified Dadant hive. With added

space in the brood chamber because of eleven deep frames, but primarily because of the 1½-inch spacing from center to center of the comb, a change has been brought about. Many detest manipulation of hive bodies or frequent examination of combs, both of which are common to most forms of swarm control. They have often found the Modified Dadant hive offers room without attendant swarming conditions that always occur with other hives under such circumstances. This has been proven by observers using as high as one thousand of these hives and for a period of time that places the results beyond the experimental stage. However, most beekeepers in this country are still using eight or ten-frame beehives with Hoffman self-spacing brood frames. Therefore the swarm control methods outlined here are based upon the use of that equipment.

Swarms usually appear coincident with or shortly after the beginning of the main honey flow in most northern and central states. Occasionally they occur before the honey flow, if spring conditions are ideal. Swarms

normally issue from the hive in the warmest part of the day, usually between ten in the morning and three in the afternoon. There are exceptions to all of these circumstances, but, for the most part, they are average and are applicable to prime swarms.

When bees are found clustered thickly around the entrance or hanging out and "loafing", it may be an indication of swarming. Examination of the brood frames at such a time may show queen cells well started or perhaps about to be capped over. Under such circumstances a swarm may be expected to issue within the next few hours, as the prime swarming usually occurs at the time the first queen cell is capped over, if no other circumstances cause delay. A sudden turn of cool weather or cloudiness may delay the swarming sometimes until one or more young queens are ready to emerge, but these are usually held captive in their cells until the old queen has issued with the prime swarm. After the prime swarm, other swarms may follow, if no preventative measures have been taken, and these are called "after-swarms." They serve only to reduce the strength of the colony seriously and to guarantee the loss of a crop in nearly every case. It is seldom that after-swarms are strong enough or can build up strong enough to winter over in most northern or central locations.

If the beekeeper has given his bees the proper spring management, his bees will have been provided with adequate egg room in the broodchamber for the queen and with adequate storage room for incoming nectar to be put into drawn combs in a super immediately over the broodchamber. Old queens will have been replaced with young queens the fall before and sufficient ventilation made available to take care of the sudden rise of temperatures.

Up to the beginning of the honey flow, then, swarm control methods may be identical, whether the colony is to be operated for comb or extracted honey. In fact, up to this point, the methods followed will be those of spring management, with swarm control incidental, as the primary object of spring management has been to get the colonies to the maximum strength of field bees by the time the main honey flow starts in any locality. Swarm control methods may have to be followed out quite rapidly in some localities, even well ahead of the honey flow, for no beekeeper can be successful in the coincidental production of honey and swarms.

Simple Methods

Disregarding the Modified Dadant hive, which, if given sufficient super room, is primarily a let-alone hive, the following methods may be adopted for swarm control: Agreeing that the presence of too many young bees in the broodchamber is a direct cause of swarming, any plan, to be successful, must remedy this condition. Also agreeing that any interruption in the constant emergence of young bees in the broodchamber is a swarm con-

trol measure, this must be considered.

An extracted honey plan that will work in most localities is undertaken when the queen is occupying two full ten-frame bodies with brood and the first important honey plants coming into bloom. Find the queen, or make sure that she has been put into a hive body containing one frame of brood and the balance foundation or comb. This body should be placed on the bottom-board under a queen excluder. Above the excluder place one or more supers, either shallow or full depth, as the intensity of the honey flow may indicate. On top of all place the broodchambers, containing the remainder of the brood, and put the hive cover over all. This is known as the Demaree method.

This prevents the crowding of the broodchamber, because the bulk of the young nurse bees will be in the upper broodchambers with the queenless brood and will only come down to the broodchamber, now occupied by the queen, as she can expand the brood in that hive body. It allows the bees to emerge within their own hive and causes no decrease in the strength of that colony. These young bees may build comb, handle the nectar as it comes from the field and soon develop into field bees for their own colony.

In seven days after the bees have been treated in this way it will usually be necessary to examine the hive bodies containing the brood above the excluder. If the queen was put below the excluder, oftentimes queen cells will be found on the frames of capped brood in these top hive bodies. In some localities swarming will occur unless these cells are either destroyed or removed. Even with a clipped queen in the bottom broodchamber, swarming may occur if these cells are allowed to mature.

In case you prefer to produce section comb honey, which usually brings a better price on the market than extracted honey, your problem of swarm control will be a little more difficult to accomplish. Only strong colonies of bees should be run for section comb honey, and these only in localities where light colored honey is produced and where the honey flows are of sufficient intensity to insure that most of the sections will be well filled and thoroughly capped over. Otherwise, extracted honey or bulk comb honey should be produced.

Up to the time of the honey flow the management of bees run for comb honey may be identical with that of bees operated for extracted honey. At the beginning of the honey flow the strong colonies are to have all but one brood body replaced by at least two comb honey supers. In removing the bodies of brood and bees to replace them with **comb honey supers** all the bees on the combs should be shaken off before the entrance of the brood chamber on which the comb honey supers have just been placed. This broodchamber should be filled with the queen and the best frames of brood. The combs of brood that are removed are then to be tiered up over colonies in the yard that are not strong enough

for comb honey production and are to be run for extracted honey.

In seven days after putting on comb honey supers it may be necessary to give a third super. This will depend upon the amount of work done in the two supers previously given and still more largely upon the condition of the honey plants and circumstances favorable to their secretion of nectar. If honey is coming in rapidly and one super is at least three-quarters full, the third super may be given next to the broodchamber. The supers should be examined at least every seven days and additional supers given if needed. Full comb honey supers may be taken off as soon as the outside row of sections is well capped.

Hiving Swarms

Where any of the colonies do swarm before treatment, the swarm should be put in a hive fitted up with full sheets of wired comb foundation and placed on the stand from which it emerged, and the parent colony, from which the swarm issued, moved to a position a few feet away. The supers from the parent colony should then be transferred to the swarm. The swarm contains practically all the field bees and should be encouraged to work in the supers immediately. The parent hive may be placed at one side with the entrance preferably at right angles to the entrance of the hive now containing the swarm. If a maximum crop of honey is desired, all queen cells may at once be destroyed in the parent colony and in twenty-one days the bees may be shaken in front of the hive containing the swarm. To eliminate shaking, use a bee escape, as previously described, whether operating for comb or extracted honey.

Increase

If increase is desired, in operating for extracted honey, and queen cells are found in the top hive body of queenless brood, seven days after swarm control manipulations, this body of brood and bees may be set on a new stand, destroying all queen cells but one. Some beekeepers prefer to shake all the bees off the combs at that time in front of the colony from which the body of brood has been taken, with the exception of one frame of brood on which one good queen cell is left. From this queen cell will shortly emerge a young queen which will mate and become the mother of the new colony.

Where the Heddon method of after-swarm control is followed, by which the parent colony is set beside the colony containing the new swarm, the parent colony entrance facing at right angles to that of the swarm colony, it is usually customary to move the parent colony to a new stand in six or seven days. This throws the field force into the swarm and usually effectively controls after-swarming. In some cases it is also necessary to examine such colonies for queen cells, for in certain localities swarming is intensive.

Most beekeepers prefer to use modifications of the system outlined according to conditions in their locality.

Where no increase is desired, the manipulations may be identical either for comb or extracted honey up to the point of examining the queenless bodies of brood and bees for queen cells. At that point all queen cells should be destroyed, and when all the bees have emerged, twenty-one days after the time the last egg was laid, the bodies of empty combs may then be put in the honey house or may be tiered up on the colonies that are run for extracted honey.

It is advisable, if outdoor wintering is practiced, to use two brood chambers for each colony, and if cellar wintering is followed, one brood chamber. But in any event, sufficient honey must be kept to carry the bees safely from the end of surplus nectar secretion to the beginning of surplus nectar secretion the next season. It will be best to manipulate your colonies of bees so that you will have two broodchambers well filled with honey for each colony that you winter, whether the bees are wintered with this honey, as in the outdoor wintering plan, or whether one body of honey is set aside for spring use, as in the cellar plan. It is always wise to set aside the first honey produced in spring to be used for the bees to winter on, because such honeys are usually better for wintering, and because this insures winter honey even if a crop failure occurs that year.

In certain localities, as in central Texas, package bees are shipped from each colony in order to reduce the congestion in the brood chamber, for, in such a locality, the surplus honey flow comes several weeks after bees have reached the peak of strength in numbers. A similar condition exists in most of the southern states from which bees are shipped. In most localities where a good crop of honey may be produced, the shipping of bees is of secondary importance. In localities where poor crops of honey are the rule the shipping of bees may be the prime source of income and the crop of honey incidental. Under such circumstances the manipulation to be followed would have to be worked out to fit the local conditions and the desire for bees and not honey. However, as honey is the primary object of beekeeping in most localities at least in the northern, western and central states, the rules of swarm control or slight modifications of them will work successfully.

It Pays to Advertise

"The codfish lays a million eggs,
While the helpful hen lays one;
But the codfish does not cackle
To tell what she has done.
And so we scorn the codfish coy,
But the helpful hen we prize—
Which indicates to thoughtful minds
It pays to advertise."

Hot Cross Buns and Honey

Strained honey and hot cross buns is a "Lenten Suggestion" featured by a large department store in Reading, Pa., at the proper season.



Outdoor meeting at Dominion Experimental Sub-Station, Beaver Lodge, Alberta, August 12th, 1924.

Beekkeeping In the Peace River Region

By W. D. Albright.

THE Beaverlodge Experimental Station is situated in what is officially known as the Grande Prairie District of northern Alberta, said district being the southwesterly portion of the famous Peace River region. That park-like tract of thirty or forty million acres is often referred to as the Peace River Valley, but is more properly described as a black-silt plateau drained by deep-cut river channels, of which the Peace itself is the main stream. It is a glaciated region, the better portion of which is surfaced with lacustrine deposit.

Rising amid glacial snows in the mountains of British Columbia, the Peace River has bored a canyon through the hills and emerged on the eastward-falling plateau, through which it has cut a majestic trough valley 700 to 800 feet deep along its upper reaches, though the banks steadily decline as it winds its hundred-league way northeast. In the bottom of the 800-foot gorge flows a quarter-mile stream seldom less rapid than five miles an hour, yet so deep-running and placid that from the heights above it resembles a thread of mercury.

"Far, far below us the broad Yukon flowing

Like threaded quicksilver, gleams to the eye."

—Service.

Beaverlodge, some sixty-five miles south of the big river, is about two hundred miles west of the longitude of Edmonton and within twenty-five miles of the British Columbia line. It is 110 miles north of Edmonton by latitude and 428 above the forty-ninth parallel. The altitude of the station is between 2400 and 2500 feet.

Since the writer commenced keeping meteorological records in 1915, the lowest temperature recorded has

Here is an account which is interesting, because it tells us of beekkeeping so far north that we can hardly expect to see anything of the kind succeed. That there should be honey produced at the same latitude as the south end of Hudson Bay seems impossible.

been 52 degrees below zero. The mean annual temperature for the nine years, 1916 to 1924, inclusive, has been only 34.54 degrees, but winter snowfall protects the crops and also the land to a large extent from frost penetration, so that winter wheat is successfully grown, and summer heat that would otherwise be used in thawing out the ground is available for vital processes. The nine years' average precipitation has been 15.76 inches, but more of this is effective than would be the case in hotter climates.

There is a remarkable difference in temperature between high and low land, a difference especially marked on clear, cold nights. The experimental station is on a local elevation.

With the exception of corn, for which average temperatures are rather low, practically all the important field crops of the North Temperate zone may be successfully grown, but the common clovers, though prolific in seed production, are not very productive of forage, owing chiefly to limited early-summer precipitation. Alfalfa and sweet clover are much better adapted. In its pristine state the country supports a great wealth of Leguminosae, while in seasons of normal rainfall the prairie is successively carpeted with masses of one bloom after another—vetch, wild sanfoin, harebells,

roses, tiger lilies, and others. Fireweed is luxuriant after every burn. Willow furnishes abundance of pollen in late April or very early May. Bumblebees and other bees are prevalent.

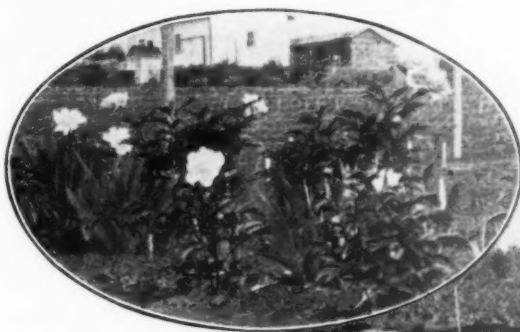
From extremely small beginnings in 1914 the sub-station has developed to a point where fifty acres of small plots were maintained in 1924.

On July 15, 1922, a colony of somewhat hybrid Italians was received from the nearest full-fledged experimental station, at Lacombe, Alberta. On arrival the colony weighed 42 pounds. It built up rapidly in bees and accumulated considerable honey until a gross weight of 72 pounds was attained in the latter part of August. Autumn consumption reduced this somewhat, but feeding was resorted to. Nectar seemed to be gathered in particularly from Alsike, White Dutch clover, sweet clover and fireweed. The bees also worked on sunflowers and other bloom. The bees were put into the house cellar in early November.

A little digression may be here permissible. Though my grandfather had kept bees many years ago on the southern Ontario farm where I was born and where I lived until twelve years of age, yet my practical acquaintance with the industry was pretty well confined to stings, honey, and the fascinating centrifugal extractor which we boys liked to turn. Later, at the agricultural college, I received a course of lectures in apiculture, passing a very fair examination, if I remember correctly. But as no practical manipulation or "clinics"—I use the word advisedly—accompanied the course, the whole thing was so abstract as to be almost useless. I could remember the patter of such phrases as "hiving on the old stand," etc., etc., but I did not know a queen from a worker or either from a drone. I had no prac-



Lilacs in bloom for the third successive season.



Peonies grown from roots planted in spring of 1923.

tical idea how to open a hive, how much smoke to use, or anything else.

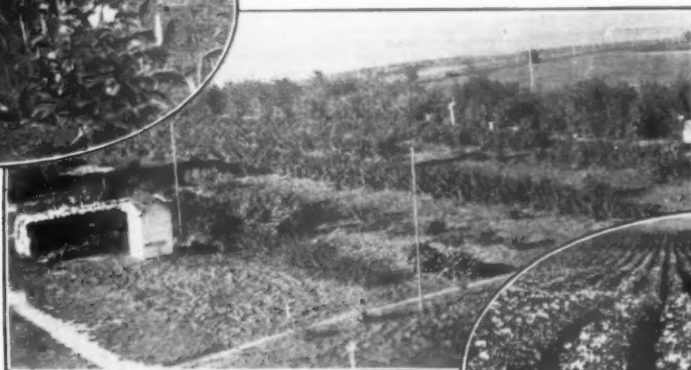
Being very busy with other matters when the bees arrived, I immediately turned them over to an undergraduate helper, and when he left in the autumn he bequeathed them to an employee who was not only uninformed but afraid of the bees as well. I could hardly say just how many phases of inexperience those bees were subjected to in the matter of autumn feeding and management, but the trump card was played when, after being celled on a cold day, they were a few days later brought up and submitted to a final examination. When this fact was reported to the Dominion apiarist I believe he pronounced the obsequies. He told me later he expected they would all die. But beginners' luck was with us. A nucleus was removed from the cellar on April 28, when the willow showed pollen, fed syrup at intervals and left to its instincts until a fortunate and timely visit from Mr. John Fixter, of Ottawa, on June 6. Mr. Fixter gave me my first practical lesson in manipulation. From that date forward I took personal charge of the bees and began to explore my ignorance. A swarm issued June 27 and another one three days later, both probably being led out by young queens. The prime swarm built up rapidly on the old stand and on August 6 had bees covering practically ten frames, with a congestion of brood. Four frames of sealed and unsealed brood were then raised

to the super. When the fact was reported to Mr. C. B. Gooderham, Dominion apiarist, he demurred, fearing chilled brood. I suggested that he was discounting our climate, a point on which, because of latitude, we are naturally somewhat sensitive. He replied that he did not think he had misjudged the climate unless our summer lasted till Christmas. Well, the lifted brood hatched out all right and the bees kept on rearing more until October, actually gathering nectar from both second growth sweet clover and alfalfa—though we are not in the

A full super of surplus honey, mostly built from foundation sheets, was taken from the prime swarm. After being fed sugar syrup, the three colonies were celled on November 8, though as the weather eventuated in 1923 they might have flown a month later. The spring of 1924 being a little backward, the colonies were not put outside this time until May 2 and 3. On May 8, after an interval of rather changeable weather with considerable high wind, during which period the bees usually carried a little pollen during some portion of the day, we examined the colonies, finding capped worker brood in all three to the extent of perhaps a quarter of a frame on the average, and many eggs. The original colony was the weakest, with bees to cover three or four frames. The prime swarm of 1923 had six or eight frames fairly well covered with bees. This was the only colony with stores run low. Colony number 3 had bees to fairly well cover five Langstroth frames.

The following very incomplete and greatly abridged blooming notes may be appended from our 1923 records:

June 7. Common lilac open; saskatoon bloom about gone; caragana and Tartarian



Small fruits and shelter belt at sub-station, Beaver Lodge, September 12, 1924. Beehives in rear, near row of Manitoba maples. Beyond, the valley landscape with a 10-mile horizon in the distance.

irrigation belt—until the middle of October. The progress of the colonies being regularly reported in detail elicited from Mr. Gooderham this interesting admission under date of September 22:

"I must confess that I am rather surprised that the bees were bringing in honey as late as the middle of September. You have us beaten by a mile. I do not think that the wintering problem is going to be as serious as it is here with us at Ottawa, as there is a danger of our bees starving to death at this time of year unless carefully watched, while your bees are broodrearing and still gathering.

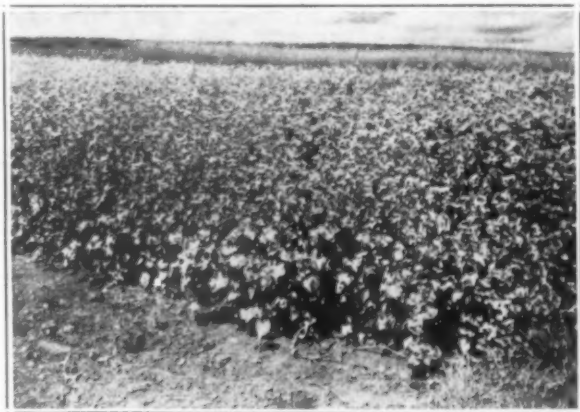


Potato bloom in August, 1924.

honeysuckle commencing.

June 18. Bees working lilacs and strawberry blossoms; Chinese lilacs opening.

July 18. Working buckwheat plots and Arctic sweet clover.



Buckwheat in bloom at Beaver Lodge, July, 1923. Cut September 8th. Yield 30 bushels, 17 lbs. per acre.

July 26. Buckwheat in full bloom.
July 29. Asters and early fireweed in bloom.

August 28. Lingering blooms on many crops, such as buckwheat, sweet clover, alfalfa, and many species of cultivated and wild ornamentals. Sunflowers and new-seeded clovers beginning to bloom.

September 7. Second-growth alfalfa and sweet clover still blooming freely. Found honeybees working again on alfalfa blossoms. At first noticed that the bumblebees were fairly swarming among the second-growth sweet clover, while the honeybees were much less numerous. On adjacent plots of alfalfa the honeybees were rather more numerous, seemingly, than the bumblebees, which were less in evidence there than among the melilot. This observation held true in two cases, situated respectively about 50 and 140 rods from the apiary. Approaching the apiary noticed the conditions changed, the *Apis mellifica* decidedly outnumbering the bumblebees.

September 14. Extremely high wind today, but saw bees working on poppies.

September 28. Even after the hard frost of September 21, bees still working freely on sweet clover, alfalfa, and certain garden flowers.

October 19 and 20. Warm days and bees flying considerably.

October 22. Hubam in garden still green and shows scattering bloom, but bees not working it noticeably.

October 25. Bees flying freely,

visiting the bloom of spinach and other plants.

Under the circumstances our crop of extracted honey amounted to but eighty pounds and the net increase in count of colonies was only one. The quality of the honey was good, an eastern friend pronouncing it equal to the best Ontario white clover.

As cellaring was for various reasons deferred until November, following an unseasonable period of below-zero weather, some dead bees were found, and the writer is by no means confident of the spring outcome. He is hopeful, however, that bees can be made a success in the North and, despite a very painful susceptibility to stings, proposes to persevere until he has solved the riddle.

It is gratifying to record that a beginner who purchased a colony in the spring of 1924, and for lack of time and experience left it desperately congested in the original chamber until the end of July, had the satisfaction, after adding a super, of seeing it fill five frames in four days, and the final outcome was seventy pounds of surplus besides a strong colony of increase, both his hives going into the winter weighing about eighty pounds, so he reports. What man has done man can do.

Great interest is taken in the little experimental apiary and a number of local settlers are making a beginning with bees. We advise them to wait and watch our experience, but their sweet tooth is impatient. Is the Peace River region to flow with milk and honey? Who knows?

little hot and burns out a little too soon. Then a happy thought happened along. We believe in changing the oil in our flivver if we happen to think of it. So we dump the old worn-out oil in a wash tub, pour in some cobs and stir them up much like we stir up popcorn and molasses to make popcorn balls. We start the smoker off with newspaper and dry cobs. After we have a bed of coals we put in a gallon or so of oily cobs into said smoker and our happiness is complete. Smoke? Why, holy smoke! you ought to see her smoke! And she stays right on the job, too. One filling will run half a day. This cob and oil idea is a time saver and I take off my hat to Professor "Cobb" of Ames.

Indiana.

Utah Honey Crop Marketed

Utah's honey crop for 1924 brought the producers approximately \$265,000, according to the annual report of D. H. Hillman, State Apiarist. The total production was 2,942,396 pounds, approximately 596,000 lbs. less than for 1923. This year's output brought higher prices, however, because of a falling off in the western states caused by unusually dry weather.

The average per colony production for the state was 62 pounds as against 74 pounds in 1923. Several counties of the state had normal crops while others fell below 50 per cent. About 60 per cent of the total crop was sold within the state and the remainder was shipped to outside markets.

Better prices are being obtained for honey because of the activities of the state beekeepers' organization, which has been functioning for the last four years. The number of colonies has increased gradually until 1924, when there was a slight decrease. This was due to the fact that several thousand colonies moved to California for the winter could not be returned to this state because of the foot and mouth disease quarantine. Also the bees did not increase as rapidly as in other years on account of the dry weather.

Because of the systematic inspection made by the state and the counties there was only about half as much disease among the bees as in other years. As a result of this work and the educational campaign carried on by the beekeepers' association, there has been a noticeable increase in the last four years in the per colony production.

L. D. Roueche.

The Terrifying Bee

"I'm just a fuzzy, buzzy bee,
But everybody's scared at me;
When I approach, they scream with fear;
'Look out! Take care! a bee is near.'"

I shouldn't think they'd care a fig,
For I'm so small, and they're so big;
Yet, when I wish to social be
They are, oh! very 'fraid of me."

Emily Mather Smith.

Corn Cobs-Holy Smoke, How They Smoke!

Jay Smith

SOME time ago, in the American Bee Journal, Professor F. B. Paddock informed us that they had a cob specialist at Ames who has been able to make most anything out of cobs, from maple syrup to diamond rings. Not interested in the syrup, as we eat honey, and we are not interested in diamond rings, as they are too cheap for us, but when he says cobs are good for a bee smoker—why, we are interested. We are glad to know that the lowly cob is coming into its own and is assuming a more dignified position in the universe, in that it can be used for smoker fuel. Since reading that article, we have been using cobs and like them very much.

Did you ever go into the yard of a beekeeper and ask him if he would please light his smoker so you could look at his bees? He gets his smoker and then begins to rummage for some fuel. It is usually all used up, so he chases after some more. He knows where there is a burlap sack and wends his way thither. He takes hold of the sack with both hands, stands on the other end of the sack with both hind feet and exerts a mighty

pull. Nothing happens! A second attempt yields no better results. Then out comes his jack knife and a frenzied job of sawing takes place. At last a piece of burlap is whittled off and a match is applied. It is placed into the smoker. After a few minutes spent in squeezing the bellows of the smoker, it is induced to give off a little smoke. The hive is opened and some more smoke is needed right quick. The doggasted smoker has gone out! We retreat in great disorder. Then the same process is repeated. To save so much cutting, half a sack is rammed in the smoker, which cannot handle such an overload, and so forth. I know of good beekeepers who fiddle away more time on their smoker than they spend on their bees. If they did a little cost accounting they would be surprised what a lot a little smoke had cost them. Some sane smoke program should be laid out. We have found that the larger the smoker the smaller the time wasted. We use the largest smoker made, and would use a bigger one if we could get it. Now that cob idea is fine. The only thing that troubles us is that it is a

The Cause of Swarming As I See It

By E. M. Cole.

THE swarming problem is usually, and I believe correctly, divided into two phases: First, swarm prevention, which takes up the various plans used in preventing the colony from reaching the swarming stage. Second, swarm control, which deals with the colony after it has reacted to the swarming impulse.

It is swarm prevention, and the best and most profitable means of swarm prevention, I wish to discuss.

The cause of swarming has, I believe, been correctly stated by many writers from Moses Rusden (1677) down to date.

Suitable weather, a honey flow, and a brood nest congested by honey, brood and bees. When a colony approaches this condition queen cells are built and the "button" which seems to touch off the emergence of the swarm is a queen cell capped or about to be capped.

Why bees swarm is another matter; I believe Mr. Rentoul, of New Zealand, has the correct idea, "To distribute the species over the face of the earth."

A colony might get along for years in a small habitation; they would need to endure a little crowding at the height of the season; the queen would be checked in her laying, and natural causes, starvation, freezing, etc., would dispose of the surplus population.

But nature has designed that the species shall be distributed and the new colony given a chance to live, "a place in the sun." So swarming has been evolved, as much a method of distribution or migration as hooks on a burr, the down that floats the thistle seed, or the balloon web that carries the spider to distant fields.

I do not think any sex instinct whatever is involved in swarming. If it were, the simple methods that sometimes prevent swarming would be entirely ineffective, and at the proper time every healthy, normal colony would cast a swarm.

Sexual instinct is probably entirely cared for in mating and laying eggs by the queen and caring for the brood by the worker bees.

Most methods of swarm prevention aim to, in some way, relieve the congested condition of the broodnest, by supplying supers filled with foundation or drawn combs, removing part of the brood, or raising combs filled with honey or brood above an excluder and substituting empty combs below.

A favorite method with some is to place combs of brood above the excluder, the brood being taken from below, using **beeless** brood taken from some weak colony, not so much with the idea of relieving the crowded condition of the broodnest as of giving **more employment** to the nurse bees under the mistaken impression that it is an excess of nurse bees that brings on the swarming impulse.

There may be an excess of a certain class of bees in the brood nest,

but it is most emphatically **not** nurse bees.

All methods of prevention are more or less successful in either preventing or delaying swarming. But, as Dr. Miller remarked, what we want is profitable swarm prevention, and I think one of the least profitable methods is removing the nurse bees from the broodnest. That is just where they are of the most value, and a given number of nurse bees can rear more brood, and in the fore part of the season far more brood in a compact broodnest than where the brood is divided into two or more bodies (meaning bodies of brood, not hive bodies).

Undoubtedly nurse bees will follow the brood upstairs, but it requires so many more bees to form the two or more clusters and care for the brood that some of it is almost sure to be lost and the queen checked in laying, and every egg and larva lost at this time is a bee less in the harvest field later.

When we consider that a bee remains a nurse bee only about seven days, and that it requires twenty-one days from the eggs to the emerging bee, it will be seen that each bee has continually in its care three baby bees. So let us leave the nurse bee where it belongs—in the broodnest.

But I believe there is in the broodnest a bee which has little to do there, and as the colony becomes populous contributes as much to the congestion of the broodnest as the nurse bee. It is the bee that has just passed the nursing age and has become a wax producer and comb builder, possibly also a honey ripener.

If a bee is a nurse bee the first seven or eight days, and a wax producer for the next seven or eight days, it is evident that the colony contains as many of one as of the other, and the wax workers may almost all be removed and as completely relieve the congestion as if nearly all the nurse bees had been removed. So let us leave the nurse bee where she belongs, in the broodnest, producing more bees for a future harvest.

The most efficient way to remove the wax producers and comb builders from the broodnest is by the use of drawn combs in the supers, but for best results these **must** be supplied **before they are needed**—before the bees have begun to crowd the broodnest with honey.

Strong colonies supplied thus with drawn comb will enter the supers at once, but medium or weak colonies may begin storing in the broodnest. These medium colonies may be brought up at once by putting in their super two or three combs from the super of a colony already working above; in the case of a weak colony the same effect may be had by bringing the bees along with the new honey.

If these wax producers are removed in this way from the brood-

nest, will it result in a loss of brood? I think not. At night or during a cool spell they gradually sink down and, if cool enough, disappear entirely into the broodnest, to reappear as the temperature rises. They go down, not to protect the brood but for their own comfort, seeking a warm spot for themselves, but they add to and help conserve the heat, with the result that the brood is cared for.

This method works equally well in extracted or comb honey production, but in comb honey production three or four bait combs will not do; it needs a full super or more of sections filled with drawn combs. With these on the colony in time, you will relieve the congestion in the broodnest just as quickly and effectively as in running for extracted.

The proper time to do this is a live question. In this locality dandelion, some years, yields barely enough for broodrearing; in other years I have seen comb honey produced from it and fifty or sixty pounds of surplus above a colony. A hive body will not contain this and also provide room for a large body of brood. So the bees must be supplied with surplus boxes in time.

If a congestion of the broodnest is the cause of swarming, will removing this large per cent of bees from the broodnest prevent swarming?

In the case of eight- or ten-frame hives I believe it will only **delay** swarming, and a good queen will quickly have the hive congested with brood, and unless the delay in swarming is carried well toward the close of the honey harvest, the colony will swarm unless some method of swarm control is used.

The remedy is a larger hive, one large enough to provide a good queen with an abundance of room for breeding. This and early supering, with plenty of drawn combs to relieve the brood nest of an almost useless population, a little extra attention to backward colonies in providing surplus combs containing new honey, will, I believe, reduce natural swarming to the minimum.

If it will not practically prevent all natural swarming, then a **congestion of the broodnest is not the cause of swarming**.

There is another type of swarming to be considered: supersedure swarming.

When from age, defective rearing or any other cause a queen begins to fail, the bees take steps to replace her. If this is done and the bees begin to cap the cells when weather conditions, honey flow, etc., are favorable to natural swarming, even though there is not enough congestion of the broodnest to cause swarming if a vigorous queen was present, this colony is quite likely to cast a swarm.

The effect of a capped supersedure cell on a colony under certain conditions, and the fact that giving a prosperous colony a capped cell under similar conditions will often cause them to cast a swarm, shows the close connection between capped cells

and swarming. It is the button which touches off the explosion.

Just here let me remark on a difference I think I have noticed between what we consider natural swarming and supersedure swarming.

In natural swarming the brood nest becomes congested and, for seven or eight days, or the time required to build cells, the queen has room to deposit but few eggs, and when the swarm is cast a large per cent of brood is capped—in fact nearly all of it.

In supersedure swarming there may be plenty of empty cells and the queen nearly up to standard in laying, so that when the swarm is cast a large per cent is eggs or uncapped brood.

So I believe the one best method of profitable swarm prevention is large hives—large enough to contain all the brood of a prolific queen, early supering with drawn combs to quickly relieve the congestion in the broodnest by drawing above the wax producers and comb builders; the continued supply of easily accessible storage room, and in this connection a frame or two of founda-

tion in each added super will provide a place to use any surplus of wax secreted by the bees and lessen the amount of burr combs built on the frames.

I have not mentioned ventilation, shade, etc., but the method I have outlined, used with good judgment, will, I believe, eliminate practically all but supersedure swarms. For this the remedy is a vigorous queen.

It is useless to try to retain a queen which the bees are bent on superseding; even if allowed to swarm and the swarm placed in an empty hive, supersedure will take place.

Good unsagged worker comb is a great help in preventing swarming; defective combs used for honey storage may greatly lessen the brood capacity of a very large hive.

Even with small hives, I believe the method I have given, that of removing the wax workers instead of the nurse bees from the broodnest, is the most profitable form of prevention. However, a constant outlook must be kept up all through the swarming season. The finishing touch is in the large hive.

Iowa.

Transferring From Tree to Hive

By D. M. Cranston.

I WAS very much interested in one article in particular in the November edition of your Journal, page 520, on "Hunting Bee Trees," written by D. M. Cranston, of Wisconsin. He however stopped too soon; he took us to the bee tree all right, but failed to tell us how to get bees and honey without destroying either. Probably he will explain that in another edition. I hope so, for I already have one bee tree located, a large elm with a very strong colony of good bees. The entrance is about sixteen feet from the ground, and a smaller entrance five or six feet further up. The owner of the tree has no objections to my cutting a large hole in the tree where the cluster is, but does not want the tree cut down; that would be no object to me, at any rate, as I want to save the bees and honey. Now, Mr. Cranston, help me catch those bees, and then we may try finding another tree.

I have also noticed in a couple of late editions a cure for poison ivy. Here is another, which I got from a French half-breed in Muskoka, where I have a summer home and spend most of the hot summer. I had a very bad dose on my hands and arms and was suffering with it. He told me to rub my hands and arms thoroughly with common table salt and water, which I did, and after two or three good applications I was cured. It came on again the next spring, about the same time. I again applied the salt and water and drove it away, and have never been bothered since.

Yours very truly,

W. L. Jay.

The above letter was sent to Mr.

Cranston, and his reply follows. The reader must bear in mind that it is much easier, if possible, to cut the tree down, bring the bees home and do the transferring as advised by us, page 124 of the American Bee Journal for 1924. The greatest stumbling block in transferring bees is possible robbing by other colonies. If they are transferred during a honey crop, fruit bloom preferred, there is much less danger of trouble.

Bear in mind that he who can transfer bees, combs and brood successfully, from either box hive or a bee tree, proves himself a very good beekeeper.

Methods of Transferring From Bee Tree to Hive.

The work of taking the honey and transferring the brood comb and bees

from a bee tree to a hive is an interesting but not a difficult job, if the bee tree is first cut down. But doing this work up in a standing bee tree is a different story. It then becomes dangerous work and much more difficult to accomplish.

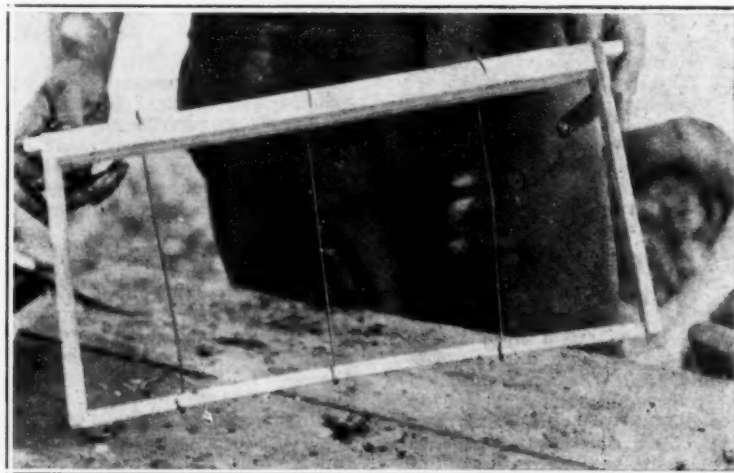
Since the methods of procedure in transferring from a bee tree cut down and from one standing differ greatly, this article will give the methods used by the writer in both cases.

Prepare a hive with six empty, unwired frames. Drive four nails into each end of the hive on the inside for each of the six frames. That is, one nail for each side of the end-bar near the bottom of hive and one nail for each side of the end-bar near the top of the hive at both ends of each frame. This will hold frames in place and prevent crushing the bees when the hive is being moved home.

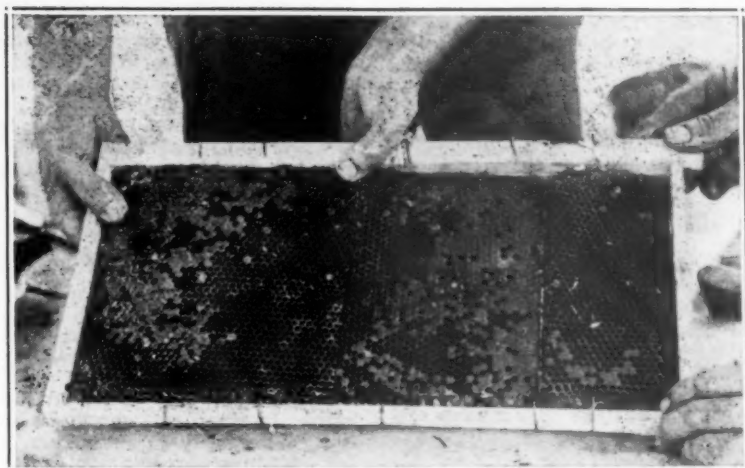
The best way to make the transferred brood comb secure in the frames is to use wire holders made out of hay wire. Bend one-half inch of the end of a wire to a right angle with a small pair of pliers. Mark the width of the top-bar of a frame from this bend and bend at the mark to a right angle to form a hook to fit over the top-bar. Place the hook on the top-bar, straighten the wire down across the side of the frame and cut it one-half inch below the bottom bar. Now make a wire for use on the other side of the frame by making a hook for the top-bar as before. Hook it on the top-bar and mark at the lower edge of the bottom-bar. Bend the wire at the mark to make it pass under the bottom-bar to the other side of the frame and then cut it three-fourths of an inch from the frame. Use this three-fourths of an inch to form an eyelet to hold the lower end of the first wire. Three or more pairs of these wire brood comb holders will be needed for each frame of brood comb transferred.

Screen wire to cover the top of the hive and a second piece to cleat over the hive entrance when ready to move the bees home will be needed.

When you arrive at the bee tree with your hive, axe and other articles needed, use judgment in falling the



Frame with wires in place for transferring comb.



Comb cut to fit in frame and containing most worth while brood. Note that edges of comb are squared off to fit close, not left rounded.

tree to prevent it from breaking at the cavity and destroying the honey and brood. When the tree is down, give the bees time to fill with honey, and then, after a liberal use of smoke, chop an opening into the brood comb large enough to permit its transfer to the best advantage. Then set the hive on the ground with its entrance toward and about three feet from the open cavity. Spread a sheet of newspaper on the covered hive, place three wires with eyelets on the newspaper in position for use and lay a frame on them with the bottom-bar next to the eyelets. Next cut out a piece of brood comb, and if it is large enough lay it on the frame prepared for it, and trim to permit it to settle down in the frame on the three wires. Then make it secure in the frame with wires slipped into the eyelets and hooked over the top-bar. The frame is then hung in the hive and the transfer continued by filling a second frame. Protect bee brood from cold wind and hot sunshine. Either will soon kill it.

When the brood comb is all in the hive fasten the screen wire on the open hive by nailing through cleats and then cover the hive to shut out the light.

Now spread a newspaper on the ground in front of the hive with one edge placed to lead the bees to the hive entrance.

The next thing on the program is to get the bees in the hive and on to the transferred brood. They are in a cluster in the cavity, and the edge of a folded newspaper must be worked back until it lays flat directly under them. It may be necessary to do more chopping to make room to place the paper in that position. When it is so placed, take a small stick and cut through the cluster to dislodge a quart or more of the bees. Then take hold of the paper to the right and left of the dislodged bees, swing around and dump them on the paper in front of the hive. Repeat this operation until the cluster is transferred to the hive. If the queen was transferred with the cluster most of the bees, including those flying about, will soon be in the hive.

If not, a small cluster will form over her while the honey is being transferred to pails. Then she must be hunted out and put into the hive.

Sometimes when making these transfers, robbing by other bees becomes serious. When this happens it is necessary to move the hive home the first evening.

This method is often used in transferring bees from a standing tree, but the height the bees enter the tree and conditions in the cavity must be favorable to make a success of it. The entrance must be low enough to permit building a scaffold up to it without difficulty, and the cavity must not extend to a height that will permit the bees to cluster out of reach. Without favorable conditions failure to get the bees into the hive is likely to occur. When this happens the only course left is to find cage, and place the queen in the hive. Then let the hive down and set it on the ground ready for the bees. If without experience, you will be surprised to see how soon some of the bees will join the queen in the hive. Usually most of the bees will be in the hive with her within an hour.

The following plan is used to

transfer bees and honey to a hive from the wall of a building and from standing trees when chopping is prohibited. It takes about four or five weeks to complete the transfer and should be started when the bees are collecting some honey:

Prepare a hive containing three frames of brood, a queen and frames of drawn comb or foundation to fill it.

Have ready for use when needed three or more supers.

Build scaffold with platform the right height to allow the hive to set with the entrance as close to the entrance in the tree as practical.

Make a funnel out of screen wire and nail it around the entrance used by the bees in the tree, so they will have to pass through the small outlet of the funnel to get out. If there are other holes in the tree that will permit the bees to pass in and out, plug them.

When the hive is now placed in position all is ready for the bees to transfer themselves.

Tiring of their futile efforts to get back into the tree, the bees will finally join and take up their home with the young bees in the hive.

It will take a week to trap out all of the field bees in the tree, and, if chopping to remove honey and brood was then allowed, the transfer could be completed without further delay. But without permission to do the necessary chopping, the operation must continue until all of the brood in the tree becomes bees and pass out through the funnel.

When the bees are all trapped out of the tree, remove the funnel and let the bees in the hive rob out or transfer the honey from the tree to the hive. If there is then a heavy honey flow, the bees may delay the transferring until after the honey flow is over.

Remember that attention to proper supering in this method is important.

The swarm in the hive receiving unnatural increase day after day for a month becomes strong and prosperous.

Neglect to give needed supers will force swarming.

Wisconsin.

Anatomy and Physiology of the Honeybee

The student of apiculture is advised to familiarize himself with the principles of bee behavior. "The Anatomy and Physiology of the Honeybee," by Dr. R. E. Snodgrass, offers that with which the bee behaves; namely, its body. The descriptions of the anatomy of the bee are not only correct, but they are presented in such a pleasantly scientific manner that if this were used as a text book it would make a class in insect anatomy a thing to be enjoyed rather than endured. The text figures are well executed and are accompanied by such clear explanations that they are readily intelligible even to those who are unacquainted with morphological nomenclature.

Those portions of the book which

are devoted to physiology bring together and present the very latest opinions regarding the uses of the body of the honeybee. It is dangerous to say that any book is the last word on a subject. However, it is safe to say that the subjects treated in this book have never before been so completely or satisfactorily handled. Its general excellence is so high that no particular portions can be mentioned as having outstanding merit. The arrangement and presentation of the subject matter make this book particularly adapted for classroom use. The book is published by the McGraw-Hill Book Company and sells for \$3.50.

J. H. Merrill, Apiarist
Kansas State Agricultural College.

Personal Recollections of the Editor

Selling Honey to the Indians

By C. P. Dadant.

THE young generation of Americans have but little occasion now to hear of the men of early days, the pioneers, the cowboys, the Indians.

When we began to produce honey on a large scale, we sought for a market in every direction. It would look queer to a westerner, to-day, to think of Illinois trying to sell honey in Colorado, Utah, Montana or Wyoming. But fifty years ago, beekeeping was almost unknown in those states; just as the possibilities of honey production were vague in the Dakotas, Manitoba and the northern provinces even only fifteen years ago. So we applied our efforts to finding a market in the countries inhabited only by Indians, cowboys, miners and prospectors.

I had a friend, three years older than myself who had arrived from Europe in 1870. He was a single man, athletic and fearless, but with a very pleasant, beardless face. He wanted activity. The lure of the Great West fascinated him. He took advantage of the gold excitement in the Black Hills, in 1875, to direct his steps in that quarter. But the Black Hills proved of little value and he went beyond. He was fond of hunting and spent a number of years on Trail Creek, Wyoming, bears, buffaloes, deer, elks, etc., kill-gether with a partner, he hunted bears, buffaloes, deer, elks, etc., killing beavers and other fur animals for their pelts. They saw only Indians of the Crow and Snake tribes. By and by, however, the value of that country for grazing was appreciated, and men of money came, with hundreds of heads of cattle and cowboys.

In 1882, having received one of our honey price lists, he ordered 1,000 pounds of honey, in pails of 25, 10 and 5 pounds, to be sent by freight to Billings, Montana, 140 miles from him. But the country was so new and the railroad progress so active that the railroad agents could not follow it. So when we asked for rates of freight on honey, to Billings, Montana, we received the following reply from the Chicago, Burlington and Quincy freight agent at Keokuk:

Keokuk, December 4, 1882.

Chas. Dadant & Son, Hamilton: Our division freight agent at Burlington telegraphs us that "Billings, Montana, does not appear on my Guide." Will you please locate? Please say in what county it is, also nearest railroad station; also what railroad is now being built towards it. We are unable to give you the rate unless we have these items of information. Yours, etc., G. Gerber, agent.

It seems strange to-day that a city, of some 18,000 people now, should have been unknown to the railroad men forty-two years ago.

Well, the honey was shipped, re-

ceived, sold among the Indians and the cowboys, and more of it ordered.

By and by, they had a postoffice to the name of this man, Arland, in what was then known as Big Horn County, now Park County, Wyoming. This postoffice is no longer in existence, but it may be found in the Rand-McNally Atlas of 1898. It was a few miles north of Meeteetse, some forty miles east of the Yellowstone National Park. There was also a postoffice established later to the name of his partner in business and activity, Corbett; this is still in existence, near Cody.

They did a thriving business and established a general store and bar, first at Meeteetse, then at Arland, and in 1884 they ordered from us 5,000 pounds of honey, in pails, which was all sold to the cattle men, the cowboys and the Indians. But conditions were changing, the buffaloes had disappeared, so had the beavers and most of the fur animals. A sort of civilization came, but it was rough, as the following letter from Victor Arland will testify:

Meeteetse, Wyo., Dec. 4, 1884.

Dear Mr. Dadant: Your letter of October 18 came to me at the end of the same month. As I was then busy establishing our business in the new store building, I was unable to reply immediately; then came the elections, which brought many people to our locality to vote and increased our work to such an extent that my health was bad; I am just beginning to feel well, and I hasten to reply to your enquiries.

Our buildings are of logs dressed and barked; the roofs are made of heavy poles ripped in two lengthwise, then covered with earth and sod; it is the only kind of roofing used here, up to this time. I bought about 3,000 feet of lumber for floors and partitions; this costs me between \$100 and \$120 per thousand feet, the freight amounting to \$2.50 to \$3.00 per hundredweight from Billings, by wagon.

The cattle live in a practically wild condition, the only care taken of them being to catch the calves once a year and brand them with a hot iron. The cowboys gather the stock in certain spots, then lasso the calves and put upon them the mark of the owner.

Those cowboys are queer characters, very violent and of unrestrained independence; but they are usually able to appreciate men of courage and energy. In the cities of the Great West they have a dreadful reputation, owing to their daring and independent ways; but I can assure you that they behave very well here, and many are astonished who are not fully acquainted with the cowboy ways. When I first began to keep a saloon, grocery and restaurant, they thought they could do what they pleased, but after having compelled good behavior in two or

three desperate fellows, they showed much respect for our place. However, my presence is necessary when there are many of them here; for they know that I do not allow any quarrelling; they show me a great deal of respect and friendship. Many strangers are astonished at this. If you should like to read some good work upon the Great West, try and get "Camps in the Rockies." It is a very realistic work upon the country where I am living and would interest you very much.

The buffaloes have entirely disappeared, so that their hides are scarce and high priced; there are but few of them on the upper Missouri.

The only trade I carry with the Indians is to buy from them the hides of elks, deer, antelopes and a few beaver, wolf and fox furs. The Indians hunt around our place in winter, after the game has left the mountains. The Crow Indian Agency is near Fort Custer, and the Snakes have their agency at Fort Washakie. I am but little acquainted with the Snakes, but I am on very friendly terms with the Crows. During the coming winter I shall send you some specimens of their work in tanning hides.

Not long ago a band of Crow Indians from North Montana, but they come down this way once in a while to steal horses from the Crows. I don't know what to do with those scalps. They are very repulsive to me.

I will send you the money for your last bill some time this winter. Give my respects to your family and our friends.

VICTOR ARLAND.

Later they had some bad winters, as the following letter from the same party will testify:

Arland, Wyo., March 26, 1887.

Dear Mr. Dadant: Your letter of February 20 has only just reached me, owing to the melting of the snows, which delayed our mails. We have had an exceptionally rigorous winter in North Wyoming and Montana; several men were frozen to death, two of them within 15 miles of this place. The cattle have suffered a great deal, especially in Montana, where the losses are about 50 per cent. In our vicinity the loss will not exceed 15 per cent.

Farther south the losses are small. This has been the longest and hardest winter I have seen in the Great West. But now the snow is gone and grass begins to grow; it is high time, for much of the cattle would starve if the snow had lasted longer. I went to Billings to make purchases for the opening season, but I was not able to make shipment to our establishment of the honey which you sent me in November (1,000 pounds), so I had it stored in Billings till I find an occasion to transport it. If I had had it here I could have sold the greater part of it this winter.

(Later) July 6, 1887.

I did not get that honey, shipped last November, until the second of this month. We had not been able to travel during the winter, and when spring came the bridge across the Stinking Water was carried away by the flood and we had to build a

boat to take the goods across. I don't know how we could have lived if I had not had a stock of goods still on hand. We are doing a good business now, in spite of the stock losses of the past winter.

V. Arland.

The end of this interesting correspondence came when Arland was murdered at Red Lodge, Montana, shot in ambush, very probably by one of the desperados whose respect he thought he had won. The information was conveyed to us in a very short letter by his partner

and friend, J. Corbett. The latter was not a capable business man and the establishment was abandoned. Corbett and Arland were very devoted to each other, having saved one another's life several times. Arland had earned among the Indians the name of "Honest Vic." Perhaps some of the old settlers around Cody would still remember him. But this was the end of our sales of honey to Indians and cowboys.

I have preserved some fifty letters from this man and they make very interesting reading.

How to Keep Colonies Strong for Honey Harvest

By H. G. Sibbald.

STRONG colonies, at the time of the main honey flow, are essential if a big crop is to be secured. Especially is this the case if, as it is in many Ontario locations, alsike or white clover are the main source of white honey.

I must take you back nearly a year in order to explain clearly the system practiced in our apiaries. It is founded on the spacing of the combs in the broodchamber.

After the bees are well up in the supers and becoming crowded, a frame of brood is removed from the broodchamber, leaving only nine in an ordinary ten-frame hive. (This frame may be put in the super and later used for nucleus or building up weak colonies.)

The nine remaining frames are evenly spaced, leaving, in my opinion, more room for bees to cluster, more air and ventilation for the hot summer weather, and making manipulations more convenient all through the season, still leaving plenty of combs for brood-rearing.

In this condition they are afterwards fed up for winter; the combs are drawn out and widened until only a bee space is left between the sealed honey, but below where the winter nest is framed more space is left for clustering than if ten combs had been used, making a comfy, ideal clustering space, with stores around and above. "What could be better?"

If well fed up, first examination in the spring will find perhaps 20 or 25 pounds of stores in these widened combs. Smoke the bees down and crowd the combs toward one side of the hive, making the centre combs touch, leaving no bee space between the sealed honey at the top of the combs; below this will be a proper space where there is no honey, but comb or brood only. The bees will cut their way through, gradually removing the sealed honey and using it for broodrearing, and it will stimulate egg production in the queen.

Two or three weeks later, crowd one or two more combs together at the top. The honey will be removed, eggs and brood put in, up to the top bar—honey stored in the outside combs. After another crowding, the extra comb is replaced, making it again a ten-frame hive at the time

when broodrearing is at its height. After the fruit bloom, if the season has been at all normal, the two outside combs will be filled, or at least partly filled, with honey and pollen. These may be taken and placed toward the centre of the broodnest, when the honey will again be removed and used, stimulating the colony through the dearth that usually occurs between fruit and clover bloom. Thus, by four or five simple manipulations the colonies are kept in a flourishing condition for the honey flow.

Montana Votes "Aye"

A measure requiring the registration of honeybee colonies in Mon-

tana, was the pretext for considerable oratory recently before the bill finally passed the house. In explaining his vote on the measure Lawmaker Caplis of Silver Bow ran through a long string of bees finally concluding that, as there was no hidden sting in the bill, he would vote for it.

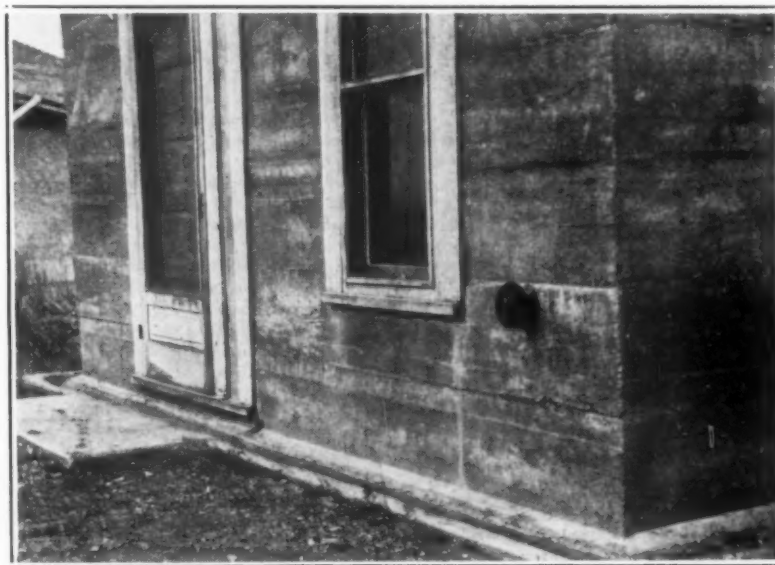
Mr. Caplis said:

"It is evident that this is a honeyed measure and it presents to my mind the question, shall it bee or shall it not bee. If it bee true that the lady bee is known as a queen bee, I must object on the ground that this country, being a republic, royal forms should not bee tolerated, and if registration bee allowed, citizenship is involved and if, as admitted, European foulbrood is prevalent it is a proper question for the world court, but of course, relations being strained, can the difficulties bee combed out?"

"Again: Shall voting bee allowed? I have heard of husking bees, sewing bees, baking bees, busy bees, so why not voting bees? I maintain Montana bees are intelligent bees and must bee regulated so that well bees do not come in contact with sick bees, good bees with bad bees, humble bees with honey bees, your bees with my bees, nor should bereaved or bewildered bees bee bereft of beneficent and benign benevolence.

"Believing, however, that there is no sting in the measure, I will bee content to vote 'aye.'"

Keeping Ants Out of Honey House



Many beekeepers complain of ants in the honey house. Poison is the method usually used to deal with them. This, however, merely reduces the number and seldom eradicates the pest entirely. B. A. Armour, of Dexter, New Mexico, is one of the few who enjoys entire freedom from ants

in the honey house. In building he extended the foundation to provide a trough entirely around the building, as shown in the picture. It is a simple matter to keep this filled with water or with kerosene oil, either of which will keep the ants from entering the building.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

TRANSFERRING

I wish to transfer bees from an old eight-frame hive in which combs have been built across frames, no foundation having been used, to new ten-frame hive. Can I do this by simply removing cover of old hive, placing new hive on top and drumming bees up into the new hive? MISSOURI.

Answer.—Yes, you can transfer the bees in that way but this will leave the brood in the old hive and it should not be lost. Neither ought you to lose the good worker combs that are in that hive, although I have known a number to prefer melting them up and using comb foundation instead.

After you drive the bees into the other hive, you can transfer all the good combs, if the job is done during fruit bloom when there is a little honey in the fields and no robbing.

Take the hive into the house or into a well closed room. Cut out all the combs. Then transfer those combs into frames, using wires to fasten them into the frames, as described in both "The Honeybee," paragraphs 574-579, and "First Lessons," paragraphs 94-95. There is no need of losing any but the crooked worker combs and the drone combs, which may be rendered into wax.

FROM 10-FRAME TO M. D.

I would like to change two or three colonies of bees from standard 10-frame hives into Modified Dadant hives. Can I do it this spring without losing too much brood? About what time would you think best to do it? MASSACHUSETTS.

Answer.—Probably as good a way as any is to put the M. D. hive on top of the 10-frame broodchamber, when the weather gets warm, closing up the joints, where the hive projects, with slats. When the broodchamber is full, the queen will naturally go up into the larger broodchamber. Then the 10-frame hive, after the brood hatches, may be used as a super. Or, if you don't wish to keep it, you may transfer the combs at leisure.

SAINFOIN

In the February Journal there is an article by Mr. Wilson, "Sainfoin as Bee Forage." Do we grow this plant anywhere in the United States?

Here where I live there are lots of peach and apricot orchards. Some of the growers raise a cover crop in the winter to be plowed under in March or April. Now I was wondering if this sainfoin is a good soil-building plant why it could not be grown here in the orchards, in fact I would like to see it tried, because the fruit growers are not very much pleased with the cover crops now grown, and maybe this sainfoin might be just what they want and also it might be of a help to us bee men. CALIFORNIA.

So many have enquired regarding sainfoin, since the article in question has been published, that we have decided to order some seed for next season—as it would be too late now for the current season—and advertise it. As we understand it, sainfoin has been tried in different parts, but perhaps not as fully as it ought to have been tried. If our readers give it a trial in different parts, it may prove satisfactory somewhere. It will not cost much to do this and, if

tried fairly, may prove good in some sections. We will give the matter mention, in time for next season.

BEEES IN TWO HIVE BODIES

I have never tried running a colony, in two bodies for comb honey.

1. Would it be all right to put another body on with full sheets of foundation, and would the bees be able to draw out the combs for the queen to lay eggs and raise brood in time to get the clover honey?

2. At about what time would you advise putting the second broodchamber on?

3. Would it be advisable to put a chamber on weak colonies with plenty of honey? PENNSYLVANIA.

Answers.—1. There is no advantage in putting a second story on until the first story is well filled with brood. If the colony has been well wintered, this usually happens by the time of fruit bloom, in 8 or 10-frame hives.

2. To get the clover crop the bees must be hatching some two weeks previous to its full yield. That means that the eggs should be laid some 35 days before the full bloom of clover. Usually clover is in full bloom some three weeks after the very first blossoms appear. But there may be a difference in dates, owing to locations.

3. Putting a second broodchamber on colonies that are weak would only serve to delay them, for they could not keep their brood warm as readily with two stories as with only one.

RADIAL EXTRACTOR

Aime Lafreniere, in the Journal for February page 68, refers to a radial, bilateral, multi-frame extractor, and C. P. Dadant's "paragraph" about it in the Journal. I can't find this. Kindly tell me where it is, and why not do up a good story on this form of extractor? VIRGINIA.

Answer.—My remarks on the bi-lateral or "radial" extractor, will be found on page 503 of the November number of the American Bee Journal.

As to "doing up a good story" on this form of extractor, I would gladly do it, if it had been sufficiently tried. I have several times praised things that did not deserve it and criticized things that were good, because they had not been sufficiently tried. So I think I had better "wait a bit" before "doing up a good story" on this kind of a machine. Time will tell, and it will probably not take long.

SUPERING BETWEEN HIVE BODIES

I am producing comb honey on ten hives and I am planning on putting the queen below in an extra hive body and putting the old hive on top of it. What I want to know is this, what chance would there be of getting a super of comb honey between the two bodies. ILLINOIS.

Answer.—There is no doubt but that you would get the comb honey supers filled in excellent shape if placed there, but the only difficulty would be that the comb honey would probably be very much darkened through the fact that the bees would carry dark wax from the upper super and use it in drawing out the comb honey sections.

It would be very much better if you could run a few of the colonies for ex-

tracted honey or else use the extra bodies for increase. They could, of course, be stacked on one or two of the colonies, and removed just as soon as all of the brood has hatched. In this way you would not hurt the comb honey so much.

REQUEENING WITH DEMAREEING

1. I practice the Demaree plan of swarm control. I would like to use the queen cells that are built in the top story to requeen my colonies with. How can I use the queen cells from the top story to requeen the bottom and have the bees accept the queen cell at the same operation that I take out the old queen?

2. Is a West queen cell protector all right?

3. Do you know of any better way to protect the cell?

4. Have you any objections to that way of requeening?

5. Do you know of any better way to requeen and do the trick at the time the old queen is taken out?

I am very busy farming and I can't go back and give the queen cell 24 hours after taking out the old queen.

Bees had a good flight here March 6. Everyone here is getting ready to make maple sugar.

The "Memories of L. L. Langstroth" was great. Now please give us something about Charles Dadant. VERMONT.

Answers.—1. If you plan to replace the old queen by a young one reared from her own brood by the Demaree method, it is not necessary to remove the queen cell and put it below. Just remove the queen excluder when you kill the old queen and the bees will accept the young one.

2. A West queen cell protector is all right, usually, in introducing a queen cell to a strange hive.

3. No.

4 & 5. No, I have no objection to that way of requeening, if you like to breed from that old queen. But if you wish to breed from a better queen, this method will not do. Then you must wait 24 hours after removing the old queen to put in the queen cell, so the bees won't destroy it. If you use a West cell protector it will still be necessary for you to go to the hive within 24 or 48 hours to release the young queen, as she would worry herself to death if she was confined very long in that cage. However, I understand that a cell protector may be open on the end, so that the queen will release herself. In that case, it will be all right.

Following the reminiscences on Langstroth, we will have reminiscences on the bee-smokers, on selling honey to the Indians, on comb foundation and on the honey extractor. After that, we may give you something on Charles Dadant and his work.

DISEASE WITH QUEENS

1. Please let me know whether I am safe, regarding bee diseases, in buying queens from Southern breeders. We have no diseases in these parts and I do not want to take a chance in getting it here through purchase of outside stock.

2. When replying please tell in a few words your unbiased opinion of gray or yellow Caucasians. PENNSYLVANIA.

Answers.—1. There is no danger in buying queens from the South or anywhere, if we do not get them on combs or fed with honey. When receiving a queen, I would recommend that you take her out of the cage and place her in a regular introducing cage, without any of her workers. The workers with her just increase the danger of opposition on the part of the bees of the hive and are of no benefit to her. Place her right in the center of the cluster next to the brood. Release her the usual way, after not less than 24 hours.

2. There are no yellow Caucasians. There are yellow bees in Lenkoran; but on the au-

(Continued on page 228)

"I Like Dadant's WIRED FOUNDATION very much indeed"—says Jay Smith

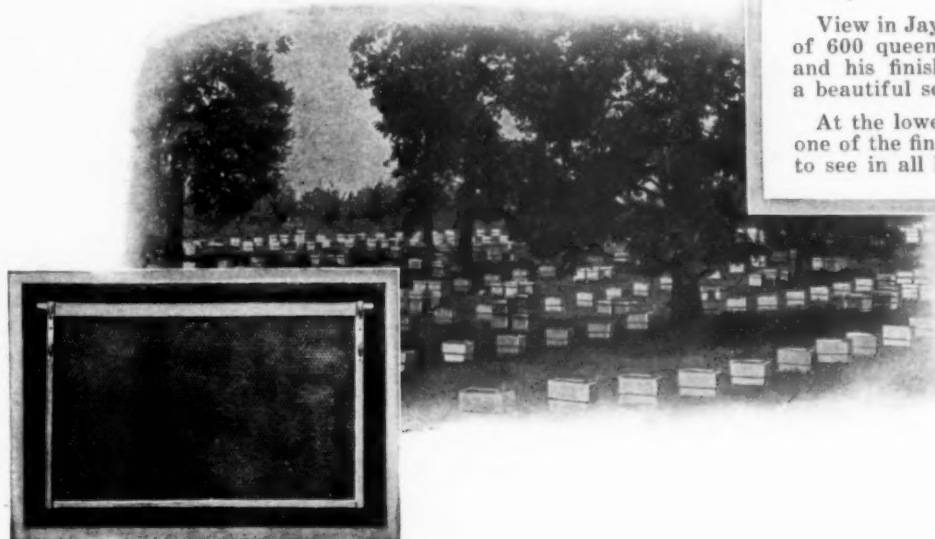
THIS is Jay—without his bee whiskers. Down in old Vincennes (Indiana), he has a model queen rearing establishment, worth a trip to see. Worth while to know Jay. He can talk real bee-language, and his queens are known the world over. The little poem opposite gives the sentiment of Vincennes folks for Smith.



When it comes to handlin' bees,
Wadin' in among the trees,
Where a swarm has settled down,
There's a man that lives around
These parts here, understand,
That handles them with naked hand.
He puts them in their hives again
And seldom gets a stinger in his hand,
Cause he has made them bees his specialty.
He can tell you by their buzz,
Exactly what their wishes wuz,
Knows their language, low or high,
In the hives or on the fly.
Yes, this bee man that lives out
In the country we're talkin' 'bout
Is Jay Smith, who helps to keep
The people in this country sweet.
(by C. C. Johnson).

View in Jay Smith's apiary
of 600 queen rearing nuclei
and his finishing colonies—
a beautiful scene.

At the lower left corner is
one of the fine combs he likes
to see in all his hives.



He writes:

"I like Wired Foundation very much indeed. Using it in frames with slotted bottombars, the troublesome job of wiring is done away with. I enclose a photo of one of our combs. We have many more just as good."

*When you plan your foundation buying
Consider what this means to you*



Dadant & Sons, Hamilton, Illinois

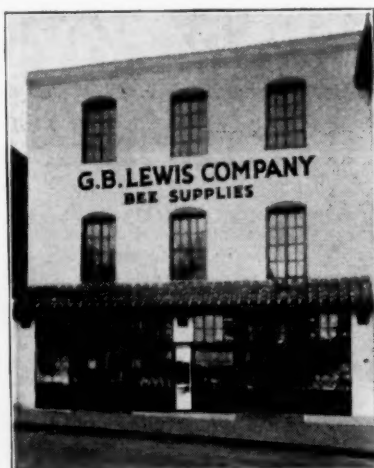
Makers of Dadant's Famous Foundations

Wired—Plain—Surplus

Sold by dealers everywhere—Write for name of nearest dealer



**BEEWAX---We pay 33c cash, 35c in trade, (f. o. b.) Hamilton, Illinois,
or Keokuk, Iowa, for your wax. Send it now before the moths get it**



Lewis Beeware Dadant's Foundation

In Lynchburg, Virginia ready for shipment

At the left is an illustration of the branch office and warehouse in charge of our own manager, whose single job is to give your orders and correspondence immediate shipment or answer. Mr. Hiett is a Virginian, well acquainted with southeastern conditions. Ask him for a free copy of "How to Produce Honey."

G. B. LEWIS COMPANY
408 12th St., Lynchburg, Va.

SEASON 1925

Pacific Citrus Honey Company

Office 221 Chancery Building, 564 Market St., San Francisco, Calif.

PRICES—QUEENS Three Banded Italians

1—Mated, untested, \$1.00; 6 for \$5.00; over 12, 70c each.

PACKAGE BEES In 2-pound packages.

1 to 10 ----- at \$2.50 ----- with queens at \$3.50
10 to 100 ----- at \$2.00 ----- with queens at \$2.50

Large orders will be given special quotation.

Terms cash—10 per cent with order, balance before shipment.

INCREASE YOUR PROFITS
by buying

BEE SUPPLIES

That are made to Satisfy

AT RIGHT PRICES

We manufacture hives, frames, sections and shipping cases and will save you money on your supplies.

Send us a list of your requirements and let us quote you prices.

Try RUSCH for HIGHEST QUALITY, RIGHT PRICES and REAL SERVICE.

Write for our new 1925 catalog.

A. H. RUSCH & SON CO., Reedsville, Wisconsin

(Continued from page 226)

thority of Mr. T. W. Cowan, of the British Bee Journal, they are said to be very cross. We do not believe any of them have ever been imported. Lenkoran is south of the Caucasus range. The Caucasians are gray bees, very gentle and prolific. But we are not anxious to breed them, because, like the bees of Carniola when they get mixed with the Italians, they make a hybrid which cannot very well be distinguished from the hybrid of blacks and Italian bees.

OVERWINTERED DISEASE

In late September, my bees were inspected for foulbrood. The examination revealed the presence of American foulbrood in four colonies, two in the incipient and two well advanced stages. These four colonies were strong at the time and beyond entrance contraction; have had no further aid to withstand the winter.

A recent view of the clusters indicates that they are fully as large as those colonies that were not affected by foulbrood and I am wondering in what condition I might expect to find them when a minute examination of frames can be had during fruit bloom.

The infected colonies had all the earmarks of American foulbrood and it was so pronounced by a very exacting beeman; yet to see them endure a severe winter, without protection and continue as strong as disease-free colonies was beyond my expectations. May I have your opinion?

ILLINOIS.

Answer.—I am not astonished that your colonies are strong still, since they were strong in late September. The disease does not attack adult bees, but only the brood. It was probably of fresh appearance in your hives. But by the time this reply is published in the Journal, May 1st, you will probably notice a diminishing number of bees, unless the disease is in so mild a form that only a small portion of the brood will die.

My advice to you is to watch those colonies closely and treat them, the usual way, just as soon as there is a little honey in the blossoms, say during fruit bloom. You will probably save them. But be sure there is no robbing.

Experience With Package Bees

The article on "Some Package Experience," page 25, January, by Mr. Tillinghast, struck me in a tender spot. I have been fortunate enough to have all satisfactory shipments. I have had all of my packages come by parcels post, but that would be an advantage only to people like me, living some miles from the express office.

I am satisfied that, if the packages are of young bees, and the queen is properly caged, they should come through with very small loss. I helped a neighbor hive some packages in which the queens were dead and the bees with a large per cent of drones. It was a waste of time to put them in the hives.

I have decided when you find a good square package shipper, stay with him. One you know will deliver good packages, doesn't expect something for nothing; bees of good color with a good queen which arrive in good shape, gentle stock and good honey gatherers.

What more can one ask than that? It is what I have been getting and I do not feel like looking up any other dealer.

H. Pearson, Wisconsin.

American Bee Journal

Meetings and Events

More Flood Damage in Florida

During the past two weeks I have completed one of the most unpleasant jobs I have ever had in beekeeping. During the flood I had around 175 colonies drown. I saved the hives and equipment, which were all two-story and well filled with honey. I washed, dried and saved around 3,000 combs, mostly filled or partly filled with honey. Fortunately, there was an average of only about 3 combs to the colony containing brood and pollen.

The flood was the worst I have ever seen. I had a river steamer chartered and after getting up in Alabama on the Chatahoochee River, some of the time we could not make over a mile an hour against the current. The first yard we reached was on a high bluff and bees drifting around in about 5 feet of water. I had 70 here of about the best I had. They were so heavy that all had drowned but 5. I washed these out right away and packed the combs back in the hives. Two large yards next were damaged very little.

At Columbia, Ala., I had 100 colonies wash back over the flats and drift about a mile, where they lodged against the timber. They stayed here a week before I could get in to them. I took a bunch of negroes and a team and wagon and recovered 80 of these. These were in the water exactly a week, and you can imagine my surprise when on looking them over I had 17 live colonies with queens. These mostly were lighter, having a well-filled brood nest but not much in the supers, so the bees had run in the supers as the water had risen, and saved themselves.

On our trip back on the lower river we picked up two men who had had their batteau capsize and had been in trees 26 hours and nearly exhausted.

Our weather here the past two weeks has partially made up for it. My bees are the strongest for this time of the year I have ever had them. Last week, in making up cell builders, I found two colonies with 15 frames of brood with a yard average of over ten.

The water reached a stage several feet above anything of previous record. At Alaga, Ala., where I had a yard, the flood reached 46½ feet above normal. At Columbia, Ala., it was nearly 50 feet.

J. L. Morgan.

Package Bees

This is the last call to remind you that it is ordering time. Package bees are most likely to be successful in localities receiving a honey flow from fall sources. This is particularly true of sweet clover districts. The necessity of having the packages arrive not later than May 1st is emphasized by the discovering by Dr. J. H. Merrill, of Kansas State Agricultural College, that one-third of the bees in three-pound packages disappeared during the first three weeks of their arrival and the remainder disappeared during the second three

weeks after arrival. Knowing this it is perfectly plain that it is not the bees which arrive with the package that gather the honey but rather the large force of young bees raised by the package in time for the honey flow.—From Michigan Beekeeper's Letter.

A Strange Farewell

The following item was sent in by A. N. Clark, of Michigan:

In the words of a little old French-Canadian trapper up in the Saskatchewan country, when bidding farewell to some friends:

"May you always have a safe tent and no sickness as you journey. May you always have a cache for your provisions and provisions for your cache. May you never find a tree that will not yield her sap, or a field that will not grow grain. May your bees never freeze in winter. May their honey be rich and heavy, and may the comb crush in your teeth like the frozen snow. May you have hearts like the morning, and may you come slow to the four corners where man says 'Good Night.'"

—Boston News Bureau.

Washington Annual Reports

The second, third and fourth Annual Reports of the Division of Apiculture of the State College of Washington are now available. They detail the results of inspection and give items of interest to Washington beekeepers. Copies may be had by addressing A. L. Melander, State College of Agriculture, Pullman, Washington.

Boys' and Girls' Club Work

The Minnesota State Fair, Hamline, Minn., August 30 to September 6, has a premium list for Boys' and Girls' Clubs, including \$250 in prizes for bee and honey exhibits. For information concerning this, write to T. A. Erickson, University Farm, St. Paul, Minn. Things of this kind should be encouraged by all means.

Good Publicity Work

C. B. Palmer, of Bradshaw, Nebraska, sets a good example for all of us. He is giving beekeeping talks to the schools on bee life, honey and beekeeping. There is great interest in the lectures. Many others are probably situated so they can do equally good work in their communities.

Michigan Summer Meeting

On August 4-5, 1925, a Michigan summer meeting is planned to be followed by a two-day auto tour through the disease-free territory in northern Michigan, August 6-7. Set these dates aside and go. Further details will be given later.

A Unique Banquet

A "Health Banquet" served at the Hotel Martin in Sioux City, Iowa, by the Sioux City Woman's Club, fea-

(Continued on page 233)

My excellent three-banded Italian queens are bred for honey production. They are gentle and hardy. Reared from the best mothers obtainable. I will have 1,000 mating nuclei in operation by May first. Safe arrival and satisfaction guaranteed. Queens, untested, \$1.00 each, 12 for \$10.00, 25 or more 80c each. One tested, \$1.50 each, 12 for \$16. Breeders, \$5.00.

JUL. BUEGELER,
Alice, Texas.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1924 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St.,
Denver, Colo.

PORTER



BEE
ESCAPE
SAVES
HONEY
TIME
MONEY

For sale by all dealers.

If no dealer, write factory.

R. & E. C. PORTER, MFRS.
Lewistown, Ill., U. S. A.

(Mention Am. Bee Journal when writing).

Thriftiness

is the quality that makes Forehand's Three Bands surpassed by none but superior to many.

THRIFTINESS is the result of 33 years' work and study among the bees.

THRIFTINESS is the quality that will help you increase 1925 profits.

Today our thrifty bees are pleasing hundreds of America's best beekeepers.

Thrifty bees are guaranteed to please you.

We can supply you with package bees by express or parcel post, and all grades of queens.

Let us mail you a copy of our latest folder, "A Message for You."

W. J. Forehand & Sons
Fort Deposit, Ala.

TENNESSEE-BRED QUEENS

Fifty-three Years' Experience in Queen-Rearing
Breed Three-Band Italians Only

| | Nov. 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|----------------------|------------------|---------|---------|------------------|---------|---------|------------------|---------|---------|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested..... | \$2 00 | \$ 8 50 | \$15 00 | \$1 50 | \$ 7 50 | \$13 50 | \$1 25 | \$ 6 50 | \$11 50 |
| Select Untested..... | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 15 00 | 1 50 | 7 50 | 13 50 |
| Tested..... | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested..... | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 21 00 |

Select tested, for breeding, \$7.50.

The very best queen, tested for breeding, \$15.00.

I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

ITALIAN QUEENS

Our Old Reliable Three-banded Italians have a reputation as honey-gatherers. They are of an exceptionally vigorous, long-lived strain of bees. They are gentle, prolific and very resistant to foul-brood. We are now booking orders for spring delivery, one-fourth cash. Safe arrival guaranteed in United States and Canada. Circular free.

Prices for April, May and June, 1925:

Untested, \$1.25; 6, \$6.50; 12, \$12. Tested, \$2.50; 6, \$14. Select untested, \$1.50; 6, \$8.00; 12, \$15. Select tested, \$3.00.

JOHN G. MILLER 723 C STREET Corpus Christi, Texas

1925

PACKAGE BEES

1925

THREE-BAND ITALIANS ONLY

If you are in the market for bees, let us quote you prices on our strain of Yancey Hustlers. Reports from all parts of the country prove that you cannot buy better honey producers. Hundreds of packages already booked for next spring delivery. Place your order as soon as possible and secure shipping date you desire. No more orders will be accepted than we can fill promptly.

No disease in our apiaries, and never has been. Safe arrival and satisfaction guaranteed on every package and queen shipped.

CANEY VALLEY APIARIES

Yancey Bros., Owners, Bay City, Texas.

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WRITE IF YOU NEED DESIGNS

Bee Anger

By R. Deimer.

I read the paragraph "Blowing vs. Breathing on Bees" with interest. Perhaps it may also be interesting to give my experience.

As long as the bees are in a nervous, frightened condition, that is after a smoking, when they are filling up on honey or aimlessly walking over the combs, one may blow on them and they will hurry away in a fright, quite regardless of whether your breath smells of roses or garlic, peppermint or booze. I have never tried these different perfumes on them, yet I am quite sure of it. When I have just cleared a part of a comb of bees by blowing on them as above, if I now refrain from smoking them, their fright will gradually pass away. Instead of running from anywhere to anywhere, they will come to the top of the frames, quietly standing there and following every movement of myself with their eyes (and, by the way, the eyes of a bee can change their expression the same as man's or those of animals, though in the bee it is barely perceptible, and then perhaps not to everyone). Should I blow on them now, it would cause from a dozen up to fly straight towards my face (unless it is protected by a veil, and it always is), and leave their stings in it. The odor of the breath, no doubt, was the same as at first. If the colony is not smoked now the whole colony will be fighting mad in a few seconds. The fiery hot sizzling of the stingers inflames not only the colony whose hive is open, but all the adjoining ones as well. Bees do communicate with each other by sound (the frightened humming of a colony which is given a good smoking will cause most or all the would-be stingers in the air to fade away), as well as other means. I have worked many times a short distance from the nearest hive. The bees coming and going past without paying any attention to me until—a until a bee with a grouch came along. Then, if the grouch was big enough, she would deposit her sting and get swatted the same instant. And no other bee would offer to sting at that time. As often as not, however, the angry bee after bluffing and threatening, would fly to the front board of the hive, flying in a peculiar circle, then suddenly flying straight for me, being now followed by a number of the guards from the entrance. The first ones to get there sting right away and move on the way. If a horse were tied in such a place it would no doubt be stung to death. Bees have a particular animosity for anything hairy, especially if there is an odor of sweat attached to it. A black hat, contrary to the general opinion, provided it is also clean and odorless, affects the bees little more than a like hat of a different color. There are other things, too, in which bees do not always behave according to the book of rules. California.

Meetings and Events

(Continued from page 231)

tured honey as a health food. Other items on the menu were uncooked vegetables, whole wheat bread, and natural rice. The honey was furnished by the Sioux Honey Association.

An Apology to E. L. Hoffmann

In the first of the two articles on the apiaries of E. L. Hoffmann, appearing in our March number, under the heading "No Guesswork Applied," we make the statement that the Hoffmann feeder requires an additional super to cover it. This is a misstatement, as these feeders do not need an extra super, which is a saving in first cost and a great cut in the labor expense of handling.

Colorado Field Meet

Remember the summer field meeting of the Colorado Honey Producers' Association and the Colorado State Beekeepers at Loveland, Colo., Saturday, June 6. All beekeepers and others interested are welcome. Basket picnic and a good program, with interesting talks by beekeeping specialists. This is a joint meeting.

C. H. Wolfe.

Short Course in Minnesota

A short course will be given at the University Farm of St. Paul, May 19 to 22. The instructors are Messrs. Jager, Matthews and Thompson. Rooms and meals may be had at the University Farm. For a program of the course, write to Francis Jager, Professor in Bee Culture.

Meetings in Illinois

A series of 11 county meetings just held in south central Illinois in the interest of local beekeepers' associations shows a lively interest in the value of organized effort. State and local associations in this state are forging ahead rapidly. It is a good sign.

COX'S GOLDENS

Untested queens from now to July 1, \$1.00 each, or 6 for \$5.00; 50 or more, 75c each. One pound of bees and queen, delivered, \$3.00; 2 pounds and queen, delivered, \$4.25; 3 pounds and queen, delivered, \$5.50. I guarantee safe arrival on everything I ship, and prompt service.

R. O. COX, Rutledge, Ala.

Telegraph Luverne, Ala.

THREE-BAND ITALIAN BEES AND QUEENS

Two-lb package with untested queen, \$4.50; 1 untested queen, \$1.00; \$10.00 per dozen; 1 tested queen, \$1.50. My motto is quality. No disease; safe arrival and satisfaction guaranteed.

J. ALLEN, CATHERINE, ALA.

GOLDEN AND THREE-BANDED QUEENS

Untested, \$1.00 each, or 6 for \$5.00, or 12 for \$9.50, or 100 for \$75.00. I guarantee safe arrival, satisfaction, and ship nothing but the best.

G. A. TAYLOR

Box 9, Luverne, Alabama

High-Grade American Beauty Italian Queens and Package Bees and Nuclei

Having recovered from my flood losses, I will be able to give prompt service to May orders.

My SPECIAL 2-lb. package with bright untested Italian queen introduced on a frame of brood and honey at \$4.75 is in a class by itself, superior to a three-frame nuclei or 3-lb. package.

I am in position to furnish more and better queens this Spring and Summer than before. One trial will convince you there are none better.

Two-pound packages, \$4.00; three-pound, \$5.00; quantities less. Untested queens, \$1.00; tested, \$1.75.

Safe arrival, satisfaction guaranteed. Health certificate furnished.

TUPELO APIARIES

J. L. MORGAN
Apalachicola, Florida

Mayeux's Light Three Banded Bees and Queens

For May and June Delivery

Last year we sold four thousand packages, the largest number ever known of a Louisiana beekeeper, with not more than a 2 per cent loss. We are better equipped this year, have more bees to draw from. Each package contains a select untested queen with a comb of honey (natural feed) for transit. Each package goes out with a Government Health Certificate. 15 per cent down, balance at shipping time. We also can furnish combless packages at same price.

A two-frame nuclei with select untested queen for breeding purposes, \$6 each.

| 3-pound Packages | | 4-pound Packages | |
|------------------|----------|------------------|----------|
| 10 | \$ 45.00 | 10 | \$ 52.50 |
| 25 | 108.75 | 25 | 127.50 |
| 50 | 212.50 | 50 | 249.70 |
| 100 | 400.00 | 100 | 475.00 |

Remember, each package includes a select untested 3-banded queen.

C. A. MAYEUX, Hamburg, Louisiana

MAY QUEENS

Gentle, well-marked bees that pay a profit.

| | |
|---------------------|-------------|
| 1 untested | \$1.00 each |
| 25 untested | .95 each |
| 50 untested | .90 each |
| 100 untested | .85 each |
| Tested | 1.50 each |
| Extra select tested | 3.00 each |

Get my prices on large lots for summer delivery.

D. W. HOWELL,

Shellman, Georgia

BIG, BRIGHT, NORTHERN BRED ITALIAN QUEENS

Bred for beauty, gentleness and honey-gathering qualities.

Delivery begins June 1. Untested, \$1.00 each.

M. P. LE MUNYON

R. D. No. 3, Cassopolis, Mich.

More bees for same cash for balance of season. Same service and bees. "Introduced and laying enroute to you." Health certificate attached. Satisfaction guaranteed.

JES DALTON,

Bordelonville, Louisiana.



CARNIOLANS AND CAUCASIANS

merit your trial this season. Get our prices before placing your order. We offer Carniolans from direct imported Kotler and Ambrozic strains as well as our own selected stock. CAUCASIANS bred from newly imported stock and the famous QUINN strain. PACKAGE BEES. We are prepared to supply you with package bees for the season. Let us quote you prices. ITALIANS. We can supply you the best in three-banded stock. GET OUR 1925 CIRCULAR, which gives full particulars of everything. It is free upon application.

W. A. HOLMBERG

Rt. 2, Turlock, Calif.



Pack your Honey in "Diamond I" Jars

YOU have a good product. Why not let it win its way through the enhancing surfaces of "Diamond I" Honey Jars? The clear fluted walls of these flint glass containers display your product to the best advantage.

Along with the ½-lb. and

1-lb. sizes, "Diamond I" Honey Jars are now available in a new 2-lb. size. Equipped with tight-fitting caps and packed two dozen to the case in corrugated re-shipping cases.

Any of the following beekeepers' supply houses can take care of your requirements:

DISTRIBUTORS:

G. B. Lewis Company,
844 N. Front St.
Memphis, Tenn.
G. B. Lewis Company,
Watertown, Wisconsin.
G. B. Lewis Company,
415 S. St. Francis St.,
Wichita, Kansas.
Texas Honey Producers' Ass'n,
San Antonio, Texas.

Colorado Honey Producers' Ass'n,
Denver, Colorado.

Dadant & Sons, Hamilton, Ill.
G. B. Lewis Company,
10 Tivoli St., Albany, New York.
G. B. Lewis Company,
408 Twelfth St., Lynchburg, Virginia.
G. B. Lewis Company,
23 W. 3rd St., Sioux City, Iowa.
A. G. Woodman Co.,
Scribner Ave., & Blumrich St.,
Grand Rapids, Mich.

Illinois Glass Company

Established 1873

ALTON, ILLINOIS

DITTMER COMB FOUNDATION

If you want nice yellow foundation made of pure beeswax and without the use of acids and adulterants of any kind, try Dittmer's. It will stand the extreme test required of Pure Wax.

We make a Specialty of working your wax for Cash.

Write us for samples and prices.

A full line of supplies and the Best Sections and Hives made in Wisconsin, at lowest prices and in any quantity.

GUS DITTMER COMPANY, Augusta, Wisconsin

Profit to You

You are bound to realize a profit on my package bees and queens. Great care is necessary in preparing bees for shipment. My method of filling packages does not shorten the bee's life. There is no better shipping point in California than Lathrop. My apiaries are free from disease. Laying queens produced under normal conditions—Carniolans and Italians.

Write for my booklet and prices.

M. G. WARD

Box 14

LATHROP, CALIFORNIA

CAUCASIAN QUEENS

Mr. Honey Producer, you know the pleasure in handling gentle bees and at the same time have the very best of honey gatherers. Caucasian Bees are the gentlest of all, and are with many honey producers giving the best satisfaction. We are rearing queer of this race and no other, and will sell you queens of pure stock, purely mated, of the best breeding.

Write for prices.

BOLLING BEE CO.

Zed Gafford, Proprietor
Bolling, Ala.

Crop and Market Report

Compiled by M. G. Dadant.

HONEY ON HAND

Our report would be, according to the reports coming in, that there is not more than 5 per cent of last year's honey held on hand now and this is gradually cleaning up, although the market in some places is very slow.

There are few, unusually few, lots of any size left in the hands of beekeepers.

PERCENTAGE OF LOSSES

The percentage of loss will run about the same as the percentage of honey still left on hand. Our guess would be that the loss has not exceeded 7 per cent, take the entire country over. The bulk of the reports coming in indicate a loss of from 1 per cent to 4 per cent, with a few of them running as high as 25 per cent. Virginia reports quite large losses through starvation, and Florida and Georgia are reporting considerable loss through fire and flood. Outside of these, the reports generally are of very small losses, indeed, a great deal less than a year ago. Undoubtedly, it will not be difficult to make up the winter losses through increase this spring, provided bees are properly cared for from now on and not allowed to starve.

CONDITION OF BEES

The condition of bees would lead one to believe that conditions throughout the country are considerably above normal.

In fact, in nearly all instances, the reporters state that the bees are in excellent shape, although there are a few cases in which they are not up to prime. Our guess would be, however, from reports coming in, that conditions are at least 100 per cent as compared to 1924, and perhaps as high as 120 per cent. The very fact that bees are so strong should keep beekeepers on the watch, because, with the protracted spell of warm weather so early in the spring, it is very likely that bees will soon run short of stores and may get out of condition before the honey crop comes. A lull in brood rearing between fruit-bloom and the major crop might be harmful to colonies

and they might dwindle where, otherwise, if properly fed they would continue to build up into rousing colonies for the crop when it comes.

PROSPECTS

Probably crop prospects will average 100 per cent with 1924, and our guess would be that they would be considerably in excess of this. The entire north half of the country was favored by considerable snow during the winter, although in many parts now there is a drought, which, if protracted, may hurt the spring plants. However, for the east and central west prospects, we would consider, at least 100 per cent with last year. It is a little early for the western half of the country to give any idea of prospects there. In Idaho there is a suggestion that alfalfa has badly winterkilled, as is also the case in Washington. Georgia and Florida, of course, were hurt by the bad floods, but this is being more than counterbalanced by the excellent honeyflow which is being harvested, especially in Georgia.

Texas is still extremely dry and honey plants as a consequence are not in the best condition, so that it looks as if the crop would run short there unless conditions change very quickly. Arizona and New Mexico are somewhat the same.

California, especially in the southern part, is still suffering for want of rain, although the orange crop has been very good. Prospects there would not indicate, even at this late date, that there would be any large crop of honey, and this, of course, will be decided by the amount of rainfall from now on.

SUMMARY

All in all, conditions would indicate prospects considerably in excess of 1924, with a very short carry-over of honey. The fact that Cuba has been hit by a very short crop so far would tend to enhance the value of our honey here, provided beekeepers and shippers are alert and in a position to take advantage of foreign markets, where the demand seems to be stiffening. Cuban honey is at present selling at a price somewhere near eight cents per pound.

QUEENS—PURE THREE-BANDED ITALIANS, BRED FOR BUSINESS

Our output has been greatly increased. No order too large for consideration; none too small for prompt attention. We strive to excel in queen-rearing and service. NO DISEASE.

PURE MATING SAFE ARRIVAL, AND SATISFACTION GUARANTEED.

Prices to June 1
Untested, \$1.00 each; \$10.00 per dozen; \$75.00 per hundred. Select untested 20c each additional; tested, \$2.00. Breeders, good as any, \$5.00

JENSEN'S APIARIES, Crawford, Miss.



THE PICTURE Tells the Story BEE-VEILS

Made of fine black imported NETTING. Square frame, self-closing smoking valve, allowing smoking without interfering with the veil. Elastic on top, drawstrings or strings to fasten under arms on bottom.

Size 45 in. x 24 in. per dozen - \$12.00

Mail orders, money or references to

ISIDOR STERN Established 1890

162 West 20th St., New York, N. Y.

Gross prices on application.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEEES AND QUEENS

BEEES AND QUEENS—Two-pound packages of bees with young Italian queen, \$2.75; three-pound package with queen, \$3.55. Read my large ad in this issue before placing your order.
H. E. Graham,
P. O. Box 666, Cameron, Texas.

SIMMONS QUEENS—Golden and three-band ready now. One, \$1.25; six, \$7.00; twelve, \$13.00. Two-frame nucleus, \$4.50; three frames, \$6.00. No disease. Satisfaction guaranteed.
Fairmont Apiary,
Livingston, N. Y.

"BEAR'S MOUNTAIN BRED BEES"—The finest Italians, three-band and golden. I am offering a special discount from my advertised prices, beginning this month. Write for particulars if you want the very hardest bees that it is possible to raise. Long range honey gatherers. All I ask is one trial order to convince you of the superior merits of these bees. Take advantage of an opportunity that will not appear again.
Hiram H. Bear,
Hinton, W. Va.

BOOKED TO CAPACITY ON PACKAGES—Why? Order a queen and find out. \$1.00 each; six for \$5.00
J. J. Scott,
Crowville, La.

ITALIANS—Strong, hardy, vigorous. None better, few equal. Untested, \$1.00; tested, \$1.25. No disease.
Chas. W. Quinn, Powhatan, Va.

GOLDEN ITALIAN QUEENS—Untested, \$1.00; 6 for \$5.40; 12 or more, 80c each. Tested, \$1.50; select tested, \$2.50. Apiary inspected by state inspector; no disease found. Safe arrival and satisfaction guaranteed.
D. T. Gaster,
Rt. 2, Randleman, N. C.

FOR SALE—Italian queens; untested, 1 to 10, \$1.00 each; 11 to 25, 85c each; more than 25 75c each. Tested, \$1.50 each. Satisfaction guaranteed. Ready to ship June 1 to June 10.
R. B. Grout, Jamaica, Vt.

PRIZE WINNERS—Three-band select untested queens, \$1.00 each; 6 for \$5.00.
W. S. Johnson,
Alexandria, La.

SUPERIOR Italian Queens and Bees Delivered—Two-pound packages, 1 to 4, \$4.75; 5-15, \$4.60; 16-24, \$4.40; 25-49, \$4.25; 50 and up, \$4.00. Queens, 1, 75c; 12, \$8.50; 100, \$65.00. Guarantee everything.
W. C. Smith & Co.,
Calhoun, Ala.

FOR SALE—Italian queens ready May 15. One queen, \$1.00; 6 queens, \$5.50; 12 queens, \$10.00.
W. W. Talley,
R. 4, Greenville, Ala.

NORTH CAROLINA Bred Italian Queens of the Root strain of Italian Bees—Gentle and good honey gatherers. No disease. From May 10 until July 1, untested, \$1.00 each; \$10.00 per dozen. Tested, \$1.50 each; selected tested, \$2.25 each, and breeders \$10 each. Safe arrival and satisfaction guaranteed.
L. Parker,
R. F. D. No. 2, Benson, N. C.

FOR SALE—Three-band Italian queens that produce hardy and gentle bees, ready to mail by May 20. Untested, \$1.00 each; 6, \$5.50; 12, \$10.00. Tested queens, \$2.00 each. Safe arrival and satisfaction guaranteed.
Robert B. Spicer,
Wharton, N. J.

THREE-BANDED ITALIAN QUEENS—\$1.00 each; \$9.00 dozen.
C. G. Ellison, Belton, S. C.

GOLDEN ITALIAN QUEENS—The gentle and bright kind. Untested, \$2.00; dozen, \$14.00. Tested, \$4.00; breeders, \$5.00 to \$20.00.
J. B. Brockwell,
Barnetts, Va.

PRIZE WINNERS—Three-band queens and bees. Select untested queens, \$1.00 each; 6 for \$5.00. Two-pound combless packages, including select untested queen, 1 to 9, \$3.50 3-lb. packages, 1 to 10, \$5.25. Write for none better at any price. I guarantee them to be hustlers. Health certificate accompanies each shipment. My shipping crates are made of well seasoned sap cypress and weigh 6½ lbs. each, including bees and feed.
W. S. Johnson, Alexandria, La.

COMBLESS PACKAGE BEES shipped on sugar syrup. Pure Italian stock with queen. Two-pound package, 1 to 10, \$4.25; 3-lb. package, 1 to 10, \$5.25. Write for prices on larger lots and nuclei. No disease and safe arrival guaranteed; 20 per cent books orders. Reference furnished.
John A. Williams,
Box 178 Oakdale, La.

EUREKA QUEENS—Highly disease-resistant, American bred, copper colored Italians. Untested, July, one \$2.00, six \$11.00, twelve \$20.00. Tested, \$15.00 each.
Eureka Apiaries, A. C. F. Bartz, Mgr.,
Jim Falls, Wis.

TRY my Cacaussian or Italian 3-frame nucleus, also queens, and be your own judge. The yard inspected by the requirements of the law.
Peter Schaffhauser, Havelock, N. Car.

PACKAGE BEES—Circular free.
Van's Honey Farms
Hebron, Indiana.

FOR SALE—Bees in 2-pound packages, with untested Italian queen to each, for \$4.00 each. Safe delivery and satisfaction guaranteed. Order now.
Clyde Cobb,
Belleville, Arkansas.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 20 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: untested queen, \$1.25; 12 untested queens, \$12.00; 1 breeder, \$5.00.
Emil W. Gutekunst, Colden, N. Y.

ITALIAN 3-banded queens. May, \$1.25 each or six for \$7.00; June and after, \$1.00 each or six for \$5.50.
J. W. Romberger,
3113 Locust St., St. Joseph, Mo.

WE want to quote you prices on your May and June queen requirements. A card will bring our circular and price list.
R. V. Stearns, Brady, Texas.

TRY Peterman's Queens. Bred from select breeders, raised in standard frame, strong nuclei, well laid up before caging and last and most important, I select out only the largest, thrifty layers to sell, killing all others. From experience, I know this pays. Am building a business on a square deal basis. Prices: 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 at \$1.00 each; 100, 90c each.
H. Peterman, Lathrop, Calif.

LEATHER COLORED ITALIAN QUEENS—\$2.00; after June 1st, \$1.00. Tested, \$2.00.
A. W. Yates,
15 Chapman St., Hartford, Conn.

BRIGHT three-banded Italian queens. Guaranteed in every way; 33 years' experience. Every queen a good queen. Price list sent on request.
J. F. Diemer, Liberty, Mo.

WE are offering our high-grade untested Italian queens at \$75.00 per hundred for May and cheaper for June delivery. An inquiry will bring our circular.
R. V. Stearns, Brady, Texas.

FOR SALE—Fine golden Italian queens, untested, \$1.00 each; tested, \$2.00. Ready for mailing May 20. Satisfaction guaranteed.
J. F. Michael, Rt. 1, Winchester, Ind.

PACKAGE BEES—Shipping during April and May from my honey colonies. Bees, shipments and price guaranteed satisfactory.
Harold Evans, Durham, Calif.

PRICES of my golden Italian queens this spring will be, untested, \$1.05 each; 3 for \$5.50; 12 or more, 80c each; with state health certificate. Safe arrival insured.
Hazel V. Bonkemeyer,
Rt. 2, Randleman, N. C.

FOR BARGAINS in 3-lb. package bees and young queens. May delivery. Free of disease, and safe arrival guaranteed. Address, Bert W. Hopper, Rocky Ford, Colo.

PACKAGE BEES from healthy stock. Shipping cages large and light. I have never disappointed a customer by failing to make shipment. See my advertisement on page 234.
M. G. Ward, Lathrop, Calif.

FOR SALE—Golden Italian Queens, untested \$1.00 each; 6 for \$5.40; 12 or more 80c each; tested \$1.50 each; select tested \$2.50 each. Apiary inspection and found no disease of any kind. Safe arrival and satisfaction guaranteed.
Sam Hinshaw,
Randleman, N. C.

FINEST Italian queens, \$1.00 each.
Wm. R. Stephens, Wingate, Indiana.

SCOTT QUEENS for 1925. Our high-grade queens will be ready about June 1. Three-band only. Our queens are bred for heavy honey production. They get big crops for us and will for you. They are gentle too. One, \$1.50; six, \$8.00. Free circular.
The Scott Apiaries, La Grange, Ind.

QUALITY AND SERVICE—We have it, when it comes to queens. Prices: untested, \$1.00 each; 25 or more, 85c each; 100, 70c each. Tested, \$2.25 each; 25 or more \$2.00 each; select tested, \$2.65 each; 25 or more \$2.25 each. Satisfaction and safe arrival guaranteed.
E. E. Salge & Bros., Weslaco, Texas.

PURE ITALIAN QUEENS—Untested, \$1.00; tested, \$1.50; 2-lb. package, \$3.00. Add price of queen wanted. Safe arrival guaranteed after May 10. Write for prices on colonies.
Birdie M. Hartle,
924 Pleasant St., Reynoldsville, Pa.

WARRANTED pure mated Italian queens \$1.25 each; mailed in my sure introducing cages; no blacks or hybrid bees around here so the drones are pure Italian. Queens will be ready to mail about May 15.
Daniel Danielsen, Brush, Colo.

BEEES AND QUEENS—Golden and three-banded Ready to ship March 20. Tested, each, \$1.00; 12, \$10.00; 50, \$40.00; 100, \$75.00. Untested, each 75c; 12, \$8.40; 50, \$32.50; 100, \$55.00. Satisfaction guaranteed.
I. N. Bankston,
Rt. 6, Dallas, Texas.

See my ad in display for three-band Italians.
J. Allen, Catherine, Ala.

EDSON APIARIES are now booking orders for spring delivery of our renowned select untested queen bees at the following prices: One to fifty, \$1.25 each; fifty, \$57.50; 100, \$100. Prompt service and a guarantee embracing entire satisfaction of our stock.
Edson Apiaries, Gridley, Calif.

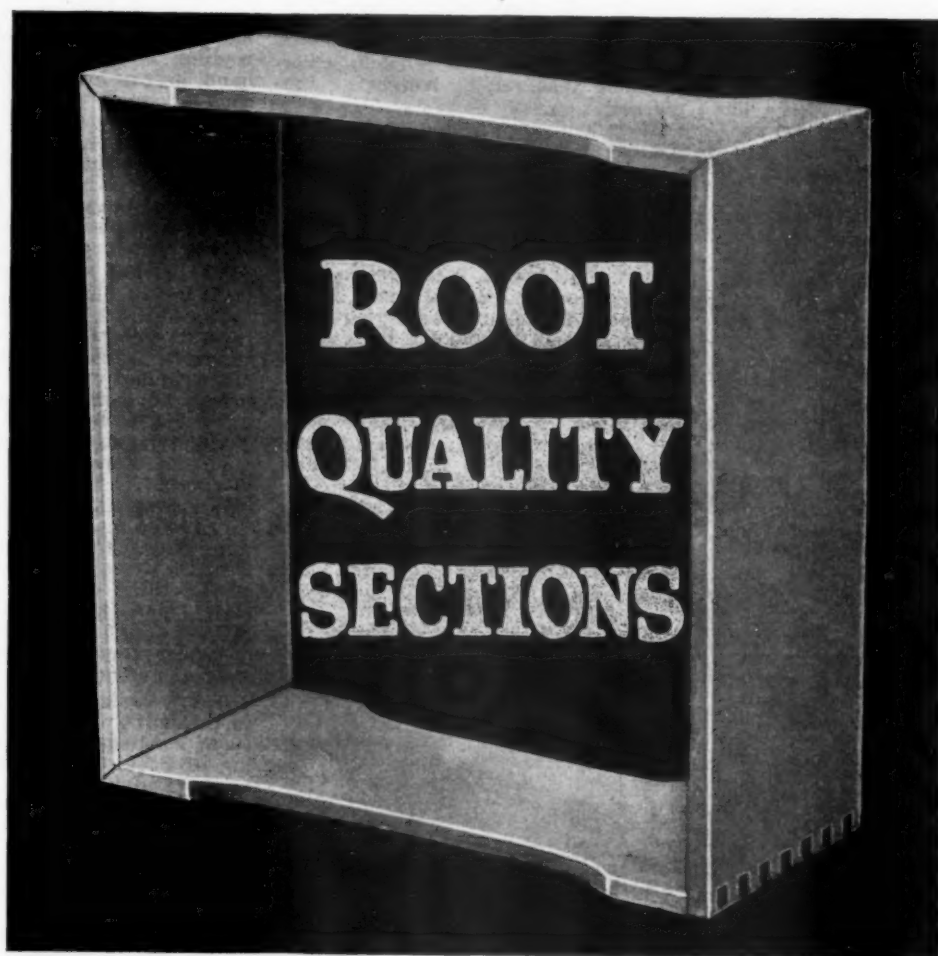
SHE-SUITS-ME QUEENS—Three-banded \$2.00 each. After June 5, \$1.00 each. Send for Price list of queens, nuclei and package bees. Free with each initial order, one Safin cage.
Allen Latham,
Norwichtown, Conn.

TEN YEARS of experience in breeding queens of quality Golden, also gray Caucasian. Golden queens, one, \$1.25; dozen, \$11.50. Gray Caucasians, one, \$1.50; dozen, \$15.00. Pure mating. Safe arrival guaranteed in United States and Canada.
Tillery Bros., Rt. 5, Greenville, Ala.

TRY Peterman's queens for quality and a square deal. Circular free.
H. Peterman, Lathrop, Calif.

BRIGHT ITALIAN QUEENS—One, \$1.00; 6 for \$5.00 or 12 for \$10.00. Write for prices on large orders or package bees.
P. B. Skinner, Greenville, Ala.

No Finer Sections in the World



SOLD BY THE MILLION

THE A. I. ROOT COMPANY
MEDINA, OHIO

Send for a Sample Section

Burr Combs

From Ducks to Dandelions

By L. C. Dadant.

In the fall and summer, as you already know, duck hunting and fishing are the main recreational pursuits for the masculine members of the Dadant family. However, the migratory bird act has eliminated hunting in the spring of the year, and this measure was very wise indeed, for, since the treaty with Canada, and the enforcement of this act, there has been a notable increase in the number of water fowl to be seen along our river shores, both in the fall and spring.

In nearly every town and in the country, there is springing up a decided interest in the preservation of our natural resources and, with that, the tendency to protect our wild fowl, game and fish. To that end the Isaac Walton League has been organized and, as a local and national organization, it is having a tremendous effect in influencing and in molding legislation for the benefit of all true sportsmen and lovers of wild life.

Very often it has been said that the duck hunter lives only during the months of October, November and December, then merely *exists* during the other nine months of the year. Without question, there is a thrill about duck shooting that is understood and appreciated only by those who have actually enjoyed the sport. A bunch of wily mallards circling and circling over the blind certainly sends shivers all up and down your spine.

Now for the Dandelions

In the spring of the year, after the snow has gone and the sun begins to get a good chance at the southern slopes nearly every member of the Dadant family starts out hunting dandelions. No, we do not hunt for the blossoms to make "hootch," but in the very earliest stage of their development the dandelion furnishes an excellent spring salad. We do not look for the large dandelions growing on top of the ground, but for those that have their roots deep seated, as these dandelions are white and crisp like celery. To the casual observer who has never hunted dandelions for salad in the spring of the year, it would look like a very slow process and a good deal like drudgery. On the contrary, it is a real sport during March and April to look for these, peeping up through the grass or out of a nearby mole hill, or under a tuft of leaves, or coming up through the sand. It takes some time, of course, to gather enough of them to make a "mess," but "Oh boy," how sweet the first mess tastes with salad oil and vinegar dressing.

This custom was brought from Europe for us by Grandfather and Grandmother Dadant years ago, and, as far as I know, very few people follow it as we do. If it were not,

however, for the sport of looking for these little green and white sprigs, it is doubtful whether we would follow this occupation very long. Many of our friends have been taught this old-time custom and many of them have learned that this simple spring salad is more to be relished than anything that can be bought on the market.

It is not an uncommon sight to see yours truly and his wife, taking a ten-pound honey pail in one hand and a peeling knife in the other, and two kiddies, going down the south slope in front of the Dadant factory just after the whistle blows at this season of the year. It is a relaxation, a recreation and a real sport, hunting these dandelions and trying hard to get enough to make a little mess for supper. Dandelions at this season of the year should never be cooked, as that utterly spoils them as a salad. A number of ways similar to the ordinary manner of preparing lettuce salad is used by our family as well as by others. The finding of these dandelions continues for over a month, and by that time they have become too strong and bitter to be relished.

Then Mushrooms

No sooner have the dandelions come to a close than we turn our thoughts to mushrooms. Hunting mushrooms is more of a sport even than hunting dandelions. If you have never tried it, take a walk on a fine day about the time the apple trees begin to bloom and look around the old dead trees in the orchard, or around the oak or elm trees in the heavy timber. Mushrooms looking like small sponges spring up here and there, and, although they are difficult to find, they certainly are worth finding. These mushrooms, or "morels," are the finest of all the mushroom family. The nice thing about morels is that they are easily recognized and are perfectly safe as a food. In this locality no one ever used to hunt for mushrooms when Grandfather Dadant first came to this country. Now, practically everyone is out in the spring of the year, and it is no uncommon sight to meet several parties in the same timber on the same afternoon, looking for these delicious fungi. Almost any of the state agricultural stations, as well as the department at Washington, will send you a leaflet or booklet on the family of mushrooms, and it is quite worth while studying this subject.

And Crawfish

Another very fine sport enjoyed by the Dadants, and probably by very few other families in the whole country, is that of catching crawfish. Yes, ugly, wiggly looking crawfish with long claws and legs which make them look worthless except for bait.

In the month of June, the crawfish sheds his old shell, and in a few days the new one hardens and he is a nice, bright looking gentleman. He is found under rocks in the small streams. By the use of a small dip net and a pair of rubber boots for wading, a quick eye and a steady hand, he can be caught in quantities. This is a sport that the entire family enjoys; even the editor of this Journal goes along, and, I believe, enjoys it more than the rest of us. As fast as they are caught, they are put in a metal bucket and the sport continues until possibly a gallon or more of them have been captured.

The writer remembers when his brother, M. G., years ago, brought his sweetheart out to the old home farm to spend the afternoon and take supper with us. Unbeknown to her, my wife had cooked a dish of crawfish and had them placed on the picnic table with the lid on the dish. The lid was not removed until everyone was seated. The look on the young lady's face was certainly one of greatest surprise. No sooner had she gotten over the first surprise than Maurice picked up one of the crawfish from the dish and put the whole thing in his mouth—shell, claws, whiskers and all. The look of awe and incredulity that came over her face was certainly worth the price of admission.

There is something quite similar in the sports of duck hunting, mushroom hunting, fishing, and the keeping of bees. Show me a good beekeeper and I will show you one who will enjoy some of these sports. In fact, every good beekeeper is really a good sport. If he were not, he would soon quit the business. How many times have you, friend beekeeper, had to face a failure with your bees? Did you give up? Well, I'll say not. You only made a firmer resolve that the next year was going to be a whale of a lot better season. The true fisherman is the one who can fish all day and not catch a thing and get up the next morning at 4 o'clock and go again. In hunting for dandelions or mushrooms, one may walk a long ways without finding a single dandelion or mushroom. All at once, however, after diligent search a patch will come into view and one is more than repaid for all the trouble of hunting for them. There is a decided thrill that makes the sport worth while.

During the past two or three years, we have had some very bad seasons, very little honey, bad drouths and much discouragement, but we believe that the patch of dandelions and mushrooms is in sight. We think that for 1925 there is going to be a good honey crop throughout this immediate territory, and we hope that it will extend far enough to reach everyone that reads this page.